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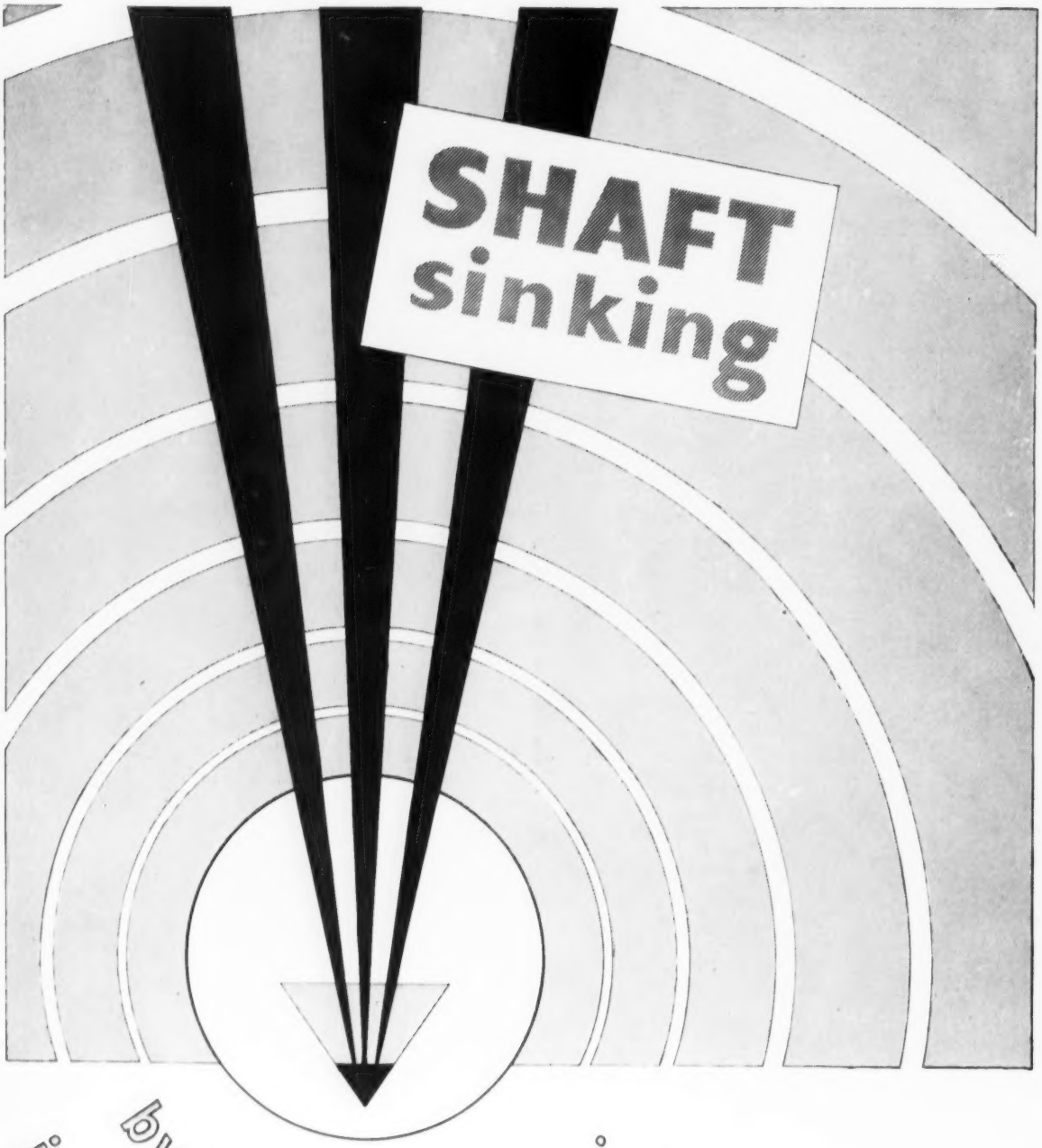

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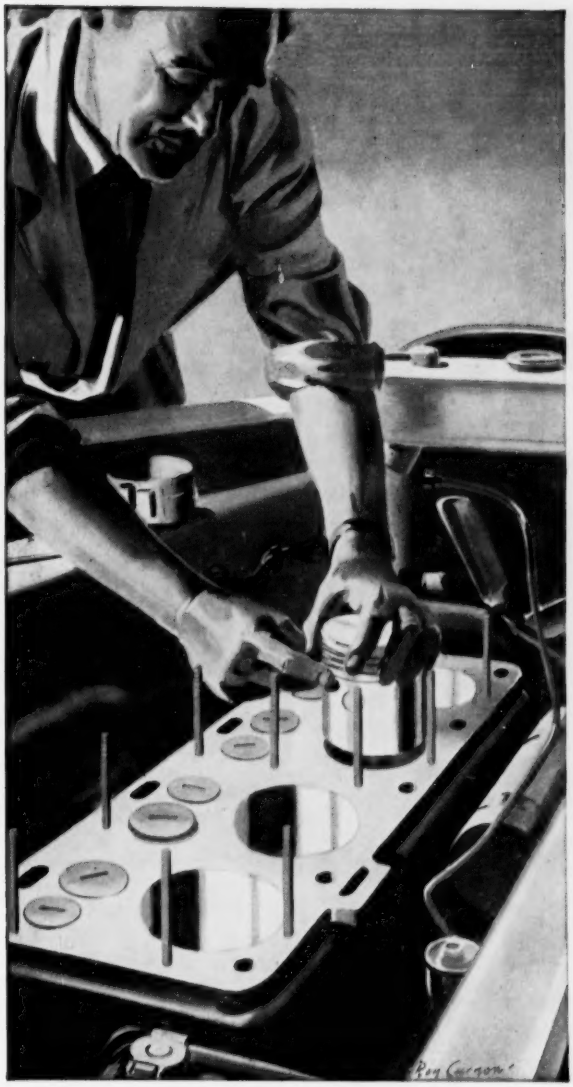

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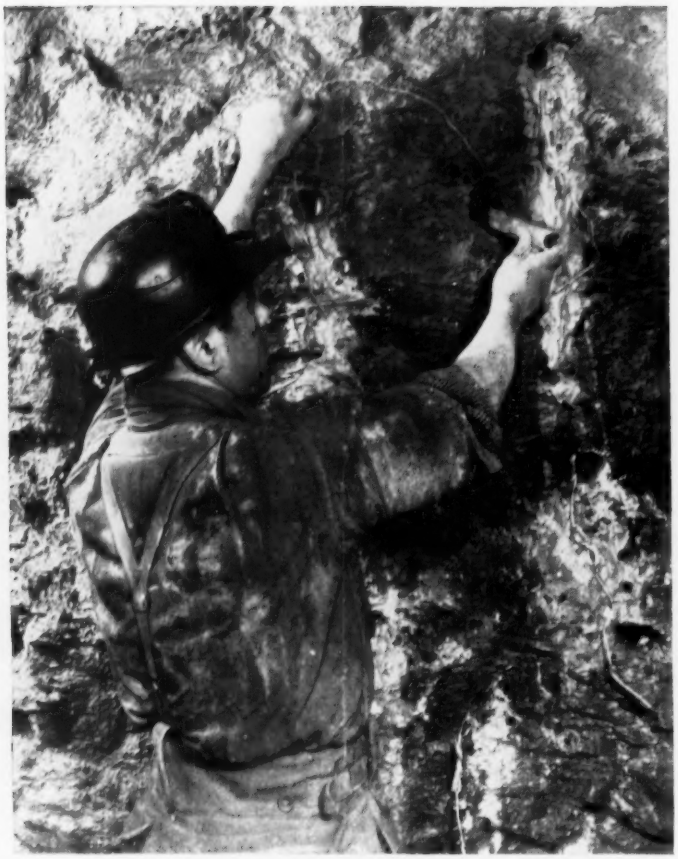

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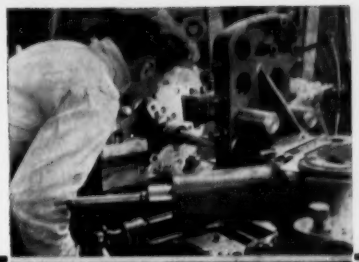

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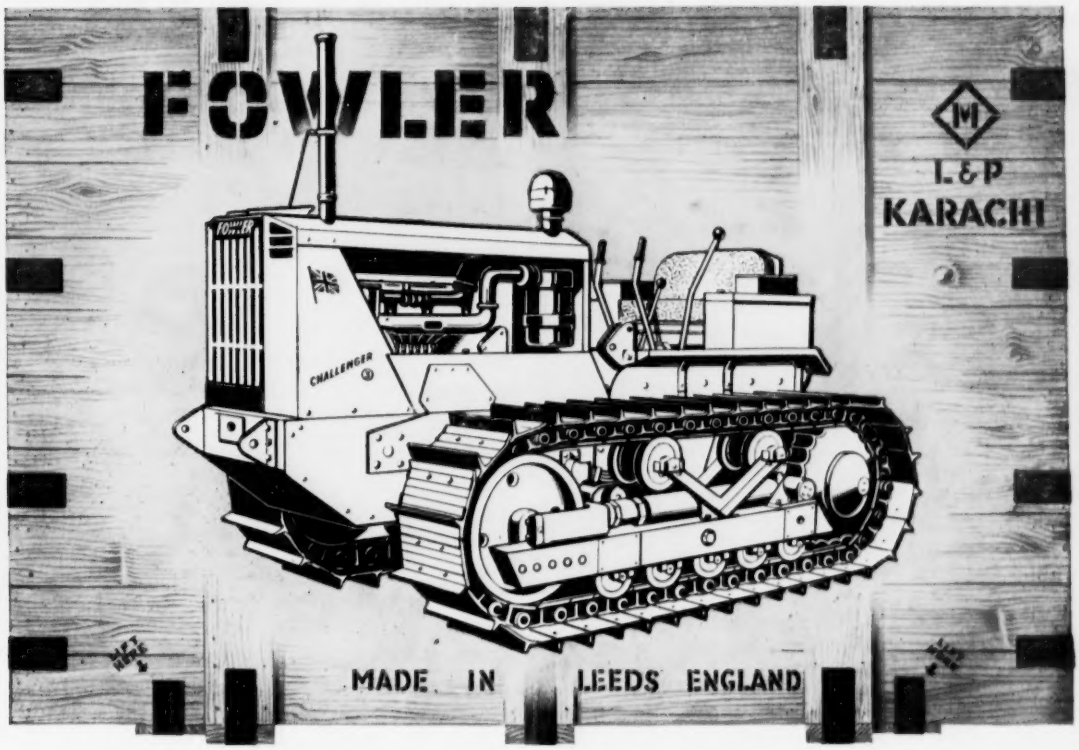

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The Mining Journal

Established 1835

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NOTES AND COMMENTS

"Casts" Diamond Agreement Under Discussion

A delegation from the Sierra Leone Government is at present in London to discuss both with the Colonial Office and with Consolidated African Selection Trust the problems arising from the alarming increase during the past couple of years in illicit diamond mining in the Colony. Illicit mining in Sierra Leone is, of course, nothing new in itself but the scale of the operations has of late grown to a point where the maintenance of law and order is being seriously threatened. A strong feeling appears to have grown up among the Africans in the Colony that they should be allowed to share in developing the wealth of their own country and that the virtual monopoly enjoyed by "Casts" under their agreement with the government should be ended so as to allow Africans the legal right to dig. This feeling is no doubt strengthened by the existence of such facilities in the Gold Coast.

As the Sierra Leone government sees the problem, its dilemma is that on the one hand popular opinion and, indeed, the sympathy of the tribal authorities, is now so strongly against the monopoly as to make policing measures largely ineffective, while on the other hand the "Casts" agreement—originally for 99 years—still has another 77 years to run.

Speaking in London yesterday, Mr. Siaka Stevens (Minister of Lands, Mines and Labour) did not disguise his hope that a way out of the impasse facing his government might be found by negotiating modifications to the "Casts" agreement so as to permit the licensing of African digging. He appears to feel that once this principle has been recognized and that if the licensing system were to be operated in consulation with the tribal authorities popular opinion would undergo a significant change, which would facilitate the suppression of illicit operators by police action.

While this could well be a correct assessment of the situation, it may fairly be asked how far the recent failure of police action has been due to government hesitancy in its enforcement in the face of popular sentiment, and how far it has been due to the inadequate size of the force, due to the recruiting difficulties which Sierra Leone has experienced in common with some other Colonial territories whose rates of police pay are unattractive.

The problem is a very real one and there is no doubt that all three parties to the discussions now being held in London will be anxious to find a workable and acceptable solution. Aside from the serious threat to law and order, agriculture has been suffering from labour shortage in consequence of the diamond fever and at present the Colony is having to import both palm and rice, staple commodities in which it is normally self-supporting. Moreover, the government must be losing very substantial sums in taxation. Losses during the past year through illicit diamond mining have been estimated as high as £4,000,000 so that the government may be losing in revenue as much again as the £750,000 it received in tax last year from "Casts."

A further unsatisfactory aspect of the matter is the extremely haphazard and inefficient methods of working employed by the illicit miner (often under cover of darkness), which quite commonly results in recovery losses of anywhere from 25 to 50 per cent and thus real losses, in terms of workable deposits, is even greater than the actual estimate the direct smuggling losses suggests.

Yet why "Casts" should be required to make further concessions under its agreement is not clear. It recently agreed to a revision of the tax formula to the advantage of the government while its record as an employer of local labour is acknowledged to be good. It is true that only a small proportion of its concession areas (which cover practically the whole of the Colony), has so far been developed, but no mining company can be expected to develop more than a few years ahead of its production requirements which are of course settled by agreement with the Central Selling Organization. Indeed, whatever proposals the government may have in mind, the problem of controlling output and allocating quotas (especially of gem diamonds which have figured primarily in the illicit operations) would seem likely to constitute one of the main difficulties in the working out of any new agreement with the company.

Beyond this one imagines that both the Colonial Office and the company will need convincing evidence that the legalization of illicit mining will of itself make effective control possible. Even if African operators do become licensed the temptation to smuggle by those who have not obtained a licence must remain and it has yet to be proven that the government has at present at its disposal the means to enforce energetic police action with or without the support of public opinion.

Granite as a Possible Source of Atomic Energy

At the seventy-fifth Anniversary Conference of Marquette University, United States, held on June 22, the possibility was put forward of using the plentiful supply of ordinary granite rock existing in the world as a potential source of atomic energy. This theory was presented by Dr. W. F. Libby, of the Atomic Energy Commission, in his paper "The Power and Problems of an Expanding American Economy," who used as his basic argument the fact that granite is possessed of a theoretical fuel value fifty times its weight in coal. Indeed, developments are even now under way which, if they prove successful, will release granite rock as an atomic energy source. It is too early, however, to say whether the indications are favourable or not.

Dr. Libby said that in addition to the direct energy furnished by the fissioning of Uranium 235, the abundant isotope Uranium 238 which is 99.29 per cent of all uranium is converted in part into a fissionable form, namely Plutonium 239, when irradiated by fission neutrons. Hitherto the military use of plutonium has overweighed the question of its value as a fuel for non-military uses, yet from the point of view of atomic power it may eventually prove to be possible to consider Uranium 238 itself as fissionable and thus as a source of power.

Should this prove to be true, a plentiful supply of fuel is available as ordinary granite rock, possessed of a uranium content of four parts per million, would then become equivalent to twelve times its own weight in coal as an energy source. The real question is whether the production of plutonium can be conducted in such a way that the number of plutonium atoms exceeds the number of Uranium 235 atoms to bring about this conversion.

Another material occurring in granite is also potentially fissionable, namely the element thorium. When thorium is irradiated in reactors it also yields a fissionable material, Uranium 233, and again the question is whether the number of Uranium 233 atoms produced will exceed the number of Uranium 235 atoms burned to maintain the piles in operation. This question remains to be answered in a practical way, but should it be answered in the affirmative, the potential fuel value of granite rock is again increased, since the thorium content is thirteen parts per million.

The total potential fuel value of granite rock is therefore fifty times its weight in coal, should both the utilization of the ordinary uranium isotope and thorium be realized.

News from the Belgian Congo

Some interesting remarks have been put forward in the reports and accounts received this week from three well known Belgian Congo mining companies—Union Minière du Haut Katanga, Société Minière du Bécéka and Symetain.

Mr. Edgar Sengier, chairman of the Permanent Executive Committee of Union Minière du Haut Katanga in his address to shareholders a week ago in Brussels, commented on the copper market position in 1954 and pointed out the marked difference between the situation existing in the United States and elsewhere in the world from the viewpoints of both distribution and pricing.

On the subject of copper production he said that on the whole, except very recently, output from new copper mines had not yet become apparent because the additional supplies had been partially offset by the contraction in output resulting from strikes in the different copper-producing centres. However, he estimated an increase in world production in 1955, of about 250,000 tonnes which should contribute to market stability.

Insofar as U.M.H.K. was concerned, the chairman felt that the prospects of the metal market taken together with the development of the company's mining reserves in the Koewzi area justified a further expansion in the company's production. This would involve additional capital expenditure but the outlays envisaged were well within the company's power to cope with from its own cost resources.

The reports and accounts of Société Minière du Bécéka contains the statement that negotiations entered into in 1954 to renew for six years the diamond contracts with the Central Selling Organization were still in progress. From the Directors' Report it would appear that the successful completion of these negotiations envisaged various modifications to the previous contracts both in the interests of the Congo diamond producers and of the Belgian diamond cutting industry.

At the extraordinary general meeting held June 21, immediately after the annual general meeting, a scheme for reorganizing the company's capital structure was approved. This involved raising the present issued capital of Frs. 180,000,000 of no par value (henceforth to be defined in Congolese francs) to Frs. 600,000,000. This was to be effected by raising fresh funds amounting to 100,000,000 Congolese Frs., the capitalization of Frs. C. 100,000,000 from reserves and a further Frs. C. 220,000,000 from stock reserves.

Further details of the activities of both these companies over the last year are given elsewhere in this issue.

The report and accounts of Symetain have also been received. The directors' report reviewing the general position of Belgian Congo mining industry states that, while the Congo is at a disadvantage compared with some other countries with regard to exploiting her mineral wealth because of the wide dissemination of deposits and by the huge distances from the mines to the ports, the increasing mechanization of the country's mining industry has done a great deal to ameliorate this position.

With regard to tin consumption, the report confirms opinions voiced elsewhere that from the end of this year or next, the consumption of tin by the tinplate industry will have exceeded the 1937 figure of 70,000 tons out of a world consumption of approximately 190,000 tons.

Mexico

(From Our Own Correspondent)

Acapulco, June 18.

Mexico ranks fifth as a world producer of copper, according to a survey released by the National Bank of Foreign Commerce. In recent years the importance of copper in the economic life of the republic has grown steadily. Production is chiefly for exportation. In the last few years copper has been in fourth place in total Mexican exports, accounting for 5.4 per cent of sales to foreign markets.

There is no mining state in the republic that does not add to copper production totals, but the heaviest producers are the states of Sonora, Chihuahua, San Luis Potosi, Zacatecas, Puebla and the Territory of Baja California.

Total exports of Mexican copper in 1954 totalled 84,300 tons, a drop from the 88,300 ton peak figure hit the previous year. However, earnings increased to $415,800,000 pesos ($33,264,000) from the 349,000,000 pesos ($27,920,000) value of 1953. Value of copper rose because of higher prices and the currency devaluation in April of last year.

According to figures released by the Department of National Economy, January and February production of copper this year came to 9,157 tons, as compared to 10,643 tons in 1954 and 9,784 in 1953. This was the only metal that did not show an increase over the previous year, in an analysis of Mexican metal production for the first two months of the year. However, it is predicted that the tempo of copper mining activity will rise during the latter half of this year.

New Approach to Diamond Mining at Kimberley, South Africa

The methods used for mining diamonds at Kimberley, South Africa, have been modified from time to time to solve the changing problem of extracting the diamond-bearing blue ground from the deep diamond pipes. Now the block caving method is being introduced for the first time to diamond mining, although it is in wide use in other types of mining. The previous mining methods used at Kimberley and the considerable advantages of the new system are described in the following article, condensed from *Optima*, Vol. 5, No. 2, a quarterley review published by Anglo American Corporation of South Africa. The author, W. S. Gallagher, B.Sc. (Electr.), B.Sc.(Mining) M.A., is general manager of De Beers Consolidated Mines Ltd.

In Kimberley, diamonds are found in blue ground, which takes the form of a volcanic pipe penetrating the overlying sedimentary rock. This blue ground, derives its name from its distinctive bluish colour, and acquires a yellow colour near the surface due to weathering. While the boundaries of the pipe deep down are very distinct, they may be disguised at the surface as a result of erosion and the formation of a limestone capping. Often at the surface, the area of the diamondiferous ground is much larger than the actual pipe, and, as a result, many early diggers pegged worthless claims outside the limits of the pipe.

PRINCIPAL PIPES

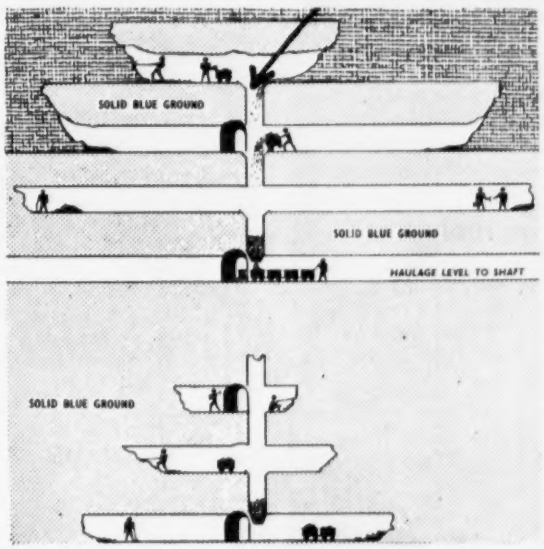
The principal pipes are those of the Bultfontein, Dutoitspan, Wesselton, De Beers and Kimberley Mines. These pipes differ not only in size but each one produces a distinct type of diamond. Stones from the Kimberley and Dutoitspan Mines are yellow in colour, whereas the Wesselton and Bultfontein Mines produce a large percentage of blue-whites. In size the Bultfontein and Wesselton stones are noticeably smaller than those from Dutoitspan where stones of 40 cts. and more are found.

The diamond pipes were initially worked on a system of claims 30 ft. square, laid out indiscriminately with little consideration being given to subsequent workings, or that the deposits on the dry diggings would extend thousands of feet in depth. The method of mining at this time was extremely primitive, the ground being excavated by pick and shovel. It was either hoisted from the claims up to the roadways by hand windlasses or carried in sacks by Natives up stepways cut in the side of the claim. The blue ground was then removed along the roadways to the edge of the pipe for treatment.

At a depth of approximately 50 ft. the limit of the yellow ground was reached and the blue ground was encountered. The treatment to which the blue ground was subjected was extremely simple. It was pulverised with a mallet or shovel and screened to remove the fine particles and larger pieces of rock. Diamonds were then hand-sorted from the remaining material. That this process was inefficient is proved by the large profits made subsequently by again treating these old tailings, often as many as three or four times.

As the depth of the workings increased, another and more serious problem had to be faced. Owing to the soft nature of the ground surrounding the diamondiferous pipe at the surface, the sides soon caved in and began to fill the mine with debris. Strenuous efforts were made in an attempt to move it, but the sides collapsed more rapidly than the debris could be removed.

At the De Beers Mine, profiting from the mistakes made at the Kimberley Mine, an attempt was made to remove the overburden surrounding the open mine. Even this proved impossible, and operations there were almost brought to a standstill. These falls of ground were extremely dangerous. In an attempt to avoid them at Dutoitspan Mine a border of solid blue was left around the mine to support the sides, but it also failed, and the sides collapsed.



The Gouldie method.
Arrow at top indicates tipping pass

With the flooding of the mines with debris it was obvious that open-cast mining was well-nigh impossible. It was, therefore, necessary to develop other methods. Edward Jones, a contractor in the Kimberley Mine, suggested and sank the first shaft, which was developed through the overlying rubble. By sinking a shaft in the open pit the operation of sinking was facilitated, and the lengthy and expensive tunnels through the surrounding country rock were avoided. This shaft enabled mining to be continued, and was soon followed by similar shafts in the mine.

As more capital was needed, centralization of claims into larger units was necessary to continue the work in place of small independent groups. It was this movement that led to the consolidation of claims in the De Beers Mine under the De Beers Mining Company, and ultimatedy led to the birth of De Beers Consolidated Mines, Limited, which finally controlled all the mines.

EARLY MINING SYSTEMS

The first system of underground mining was a form of pillar and stall mining. Parallel tunnels were driven from the shafts, and, at intervals along the length of these tunnels, chambers were excavated into the sides of the tunnels. The ground excavated from the chambers was taken to the surface and treated to recover the diamonds in it. In order to support the workings, pillars of blue ground were left between chambers, and the whole mine assumed the nature of a gigantic honeycomb, particularly when the chambers were being excavated simultaneously on several levels. As the blue ground in the pillars was not removed, they were made as small as possible; as a result, the pillars collapsed in many instances, and the mine became unsafe. At one

stage in the Kimberley Mine, the weight of ground above the chambers began to crush the entire workings.

THE GOULDIE SYSTEM

A later development of this mining method was the "Gouldie" system. This shows a sectional view of chambers being excavated. It will be seen that additional chambers were cut between the levels of the main tunnels. In this method, the broken ground excavated from the chambers was dropped down tipping passes to lower levels (haulage levels), where it was transported to the shaft. When the chambers had been excavated to their full length, the roof of the uppermost chamber was broken away (and transported to the shaft), allowing the waste rock above it to fall in and gradually fill the chamber almost up to the tipping pass. This process was repeated on successive levels below, and the broken ground formed an arch above the unfilled chambers. Most of the weight of the overburden was thus supported at the extremities of the arch resting on solid ground. In this way, the crushing weight of the overburden, which caused the failure of the previous system, was avoided. But this method also had its drawbacks, particularly the difficulty of handling the broken blue ground through the small passes.

Later the Gouldie system was found to be impracticable, and, in 1887, when the De Beers Mining Company was instituted, a uniform system of mining was undertaken. This was the forerunner of the system of chambering at present used in these mines.

THE CHAMBER METHOD

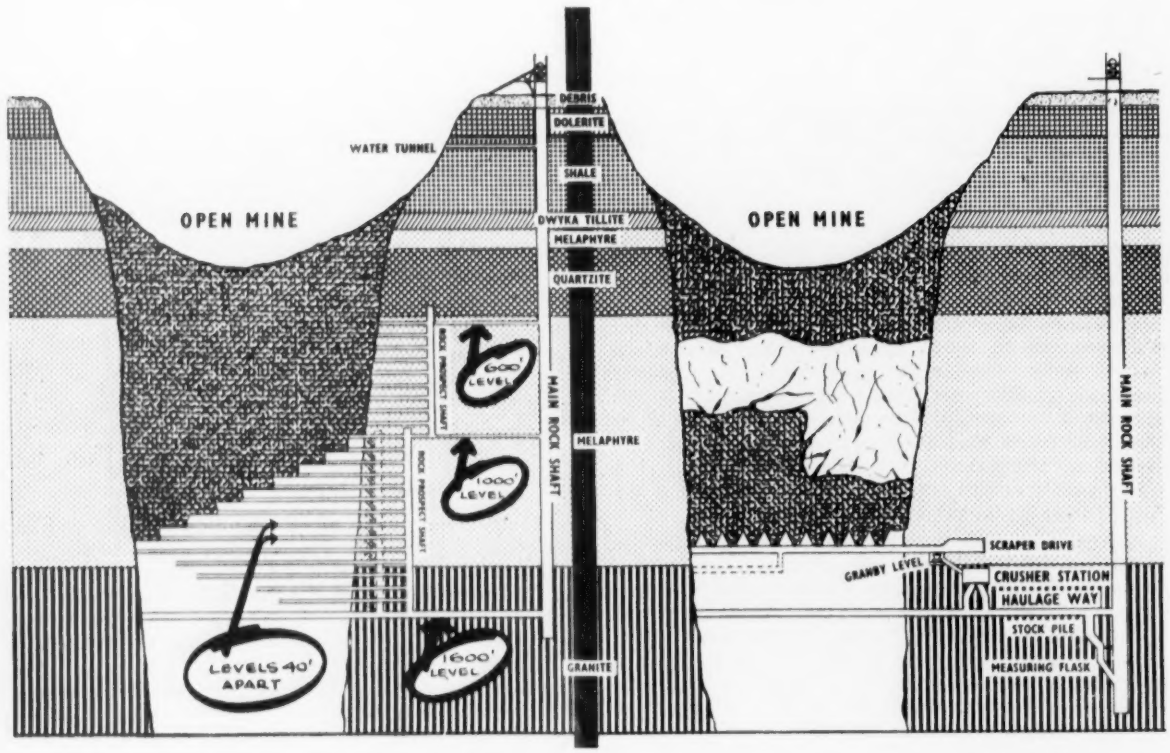
In the present system of chambering, from the main rock shaft located in country rock (solid rock beyond the perimeter of the diamond pipe), haulage levels have been established at depths of 600 ft., 1,000 ft. and 1,600 ft. These levels are connected by rock prospect shafts (still outside the perimeter of the pipe), from which chambering levels, 40 feet apart, were established. On each level in turn, as mining proceeds, parallel tunnels are driven from the prospect shafts to the extremity of the pipe.

The method of mining is as follows. Twenty feet from the ends of the loading places excavations are made into the side walls until a continuous connecting tunnel 12 ft. wide joins the ends of the loading place tunnels, leaving a back pillar 8 ft. wide. The blue ground removed from these excavations is loaded into cars and transported to the shaft and thence to the surface for treatment. Holes are then drilled in the roof and the blue ground is blasted, causing it to fall (to be recovered and taken to the surface) and at the same time releasing the broken ground from the level above. This releases the weight that might otherwise cause the open excavations to collapse.

This procedure is carried on right across the width of the pipe. The process is then repeated over the next 20 ft. of the tunnels, the blue ground being mined in successive slices. Mining on each level is carried in advance of the one below, which prevents the lower workings from weakening those higher up. The tunnels driven on the lower levels in preparation for chambering are secure in solid blue ground.

INCREASING MECHANIZATION

Holes are drilled with pneumatic machines, and the footage has increased to 175 ft. per operator per day. This system of mining has proved itself to be very effective for many years, as is shown by the extremely low costs and high labour efficiencies, despite the widespread use of manual methods of handling ground. The costs, even now, are some of the lowest for underground mining, being only 5s. 6d. per ton. Labour efficiencies, at eight tons per shift per person underground, compare favourably with many more highly-mechanized projects.



At left, the chamber method where a large number of levels are required. At right, block caving, where a minimum number of levels are required.

With the growing scarcity of labour, the natural urge to improve the system and the modern emphasis on the mechanical rather than the manual, strenuous efforts are being made to develop more efficient methods of mining.

The use of diamond drills has enabled long holes, 30 to 40 ft. in length (as contrasted with holes five to six feet in length in normal working), to be used successfully in the chambering system. But, owing to the great variation in the nature of the blue ground—in some parts of the mine hard rock is encountered in the blue ground—this method is applicable only in certain cases.

In practically all forms of diamond drilling, water is used as a lubricant and cooling agent. Unfortunately, water has a most harmful effect upon blue ground, as it causes the ground to swell and disintegrate; thus, water cannot be used in most places in the local blue ground. For this reason, a system of dry diamond drilling was perfected. The great advantage of diamond drilling lies in its safety, for the miner can now remain at the base of the chamber, and does not have to work higher up in the chamber where the roof may be dangerous.

All these methods of chambering, nevertheless, still suffer from the disadvantage that ground must be loaded manually. Despite the high efficiency of labour in this work, two Natives can load and transport to the passes, on an average, only 40 tons per shift, and large numbers of labourers are required. One of the major drawbacks of handling the blue ground manually is the difficulty of enforcing effective security measures. Mechanical loaders have been used but needed wider tunnels to work in, which increased the danger that the workings might be crushed by the weight of ground above them, particularly in the weaker zones. The crushing of large areas of the mine still remains a major problem, and the problem will be aggravated as mining continues to greater depths.

SUB-LEVEL STOPING

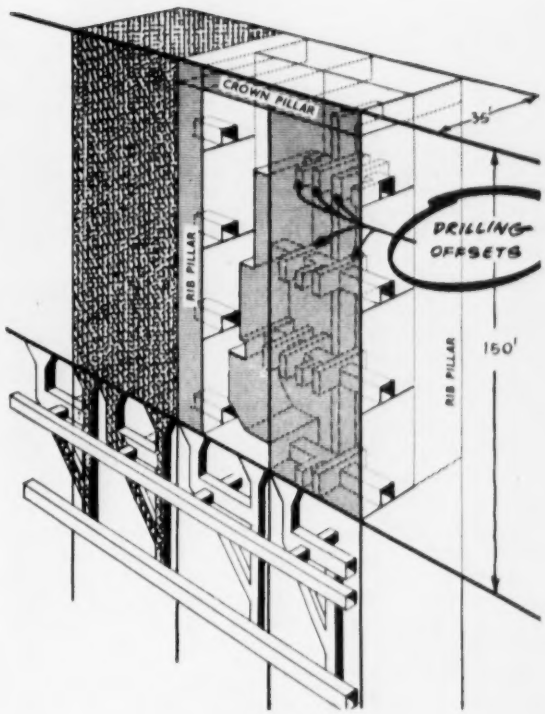
A system known as sub-level stoping has been tried in an isolated area of Dutoitspan Mine. This method is only of passing interest in its application at Kimberley.

The system operates by blasting away vertical slices of blue ground in sections over a vertical face about 150 ft. high by 25 ft. wide. The broken ground falls to the bottom of the stope, where it passes to the haulage through cone-shaped excavations. A protective roof or "crown pillar," is finally blasted away, allowing the broken ground above to fall into the worked-out section. This system had the advantage that all loading was concentrated at the base of a block 150 or 200 ft. high, instead of loading the ground on intermediate 40-ft. levels, as in chambering.

After a visit to America and Canada by one of the officials of De Beers Consolidated Mines, it was decided to experiment with the block caving method. In block caving as applied to blue ground, cone-shaped excavations are cut beneath a huge volume of blue ground, which begins to break up and pass through the cones.

Just above the cones a horizontal "slot" is cut. As the weight of this mass of overhanging ground, about 400 to 600 ft. high, is then unsupported over a large area, the ground begins to fracture and slowly to settle on the top of the cones. As the ground settles, it breaks up into pieces small enough to pass through the cones into lower tunnels, called scraper drifts. Mechanical scrapers pull the broken ground along these tunnels to a grizzly through which ground of suitable size falls into cars. The cars transport the blue ground to another grizzly, and tip the ground through it to the crusher station below. From the crusher station the ground is fed to a conveyor belt, which takes it to the main hoisting shaft.

The system is highly suitable for use in the diamond



Sub-level stoping.

mines, for, even more than in the case of sub-level stoping, it permits all loading to be concentrated at the base of a block of blue ground 400 to 600 ft. high, where adequate mechanical facilities can be provided, thus eliminating manual handling of the blue ground. Full use is made of gravity to fracture the ground in the block.

With all the work concentrated on one or two levels, the number of tunnels to be driven is greatly reduced. As there are fewer operating levels, block caving permits of a concentrated system of mining, with all the attendant advantages of better ventilation, improved working conditions and closer supervision.

As depth increases, the blue ground appears to fracture more readily; thus it may prove impracticable to continue the chambering method in these zones owing to the difficulty of keeping the workings open. But conditions that operate against chambering should favour caving, and this may be the solution of the problem of mining at depth. Block caving has, in fact, been used in a portion of the Bultfontein Mine with such promising results that the system is being extended to the Dutoitspan and Jagersfontein Mines.

CONCLUSION

In conclusion, a brief comment will suffice to show some of the effects of the development in mining techniques and modern recovery processes. The saving of labour has been considerable: only 3,366 Natives and 934 Europeans are employed now, compared with 14,179 Natives and 2,700 Europeans employed in 1905, when the amount of ground washed was approximately the same. To-day, the accident and sickness rates are among the lowest in the industry.

Probably one of the most noticeable features of these improvements has been the effect on Native labour. The De Beers Company can claim the unique record of never having had to recruit labour. The company is fortunate in having a ready supply of Native labour.

Exploitation of the Nepheline Syenite Deposit at Blue Mountain, Ontario

The base of the extractive and treatment industry of nepheline syenite is the Blue Mountain deposit in Ontario. This deposit is five miles in length and averages 350 ft. in height, while width varies from one-quarter of a mile to a mile. The site is some 125 miles north-east of Toronto near the towns of Peterborough and Lakefield, and in the south-western area of the deposit is Nephton, the township and plant site of the operating company, American Nepheline Ltd. The following article describes operations at Blue Mountain, and is condensed from an interesting brochure entitled *The Story of Lakefield Nepheline Syenite*, published by American Nepheline Ltd.

Exploitation of the Blue Mountain nepheline syenite deposit was begun in 1935, and the following year production facilities were expanded to meet the demands of the glass industry of the United States and Canada. The finances for this expansion were supplied by Ventures Ltd., and in 1937 a new mill was built at Rochester, New York, to supply the U.S. glass industry. The glass industry in Canada was supplied from a small mill at Lakefield, Ontario, the nearest rail point to the mine at Blue Mountain.

In 1947 a mill was erected at Nephton, which consolidated the milling operations previously carried out at Rochester and Lakefield. This expanded operation resulted in the alteration of the title of the company to American Nepheline Ltd. The mill at Rochester was closed down, while operations at Lakefield were confined to storage and the production of finely ground nepheline syenite.

New applications for nepheline syenite were developed by a continual programme of research carried on by the company, and it has been necessary to increase production facilities to the present capacity of 12,000 tons per month.

NATURE OF PRODUCT

In its geological structure nepheline syenite is a white igneous rock resembling granite in texture and hardness. The rock consists mainly of the following minerals; albite feldspar 50 per cent, microcline feldspar 25 per cent, and nepheline 25 per cent. The rock contains little or no free quartz.

During the processing operation, the crude rock is crushed and ground to a granular sand-size of about 30 mesh, at which point minor iron minerals are removed by magnetic separation. Following this operation some of the material is further ground to various grades of powder from 200 mesh to fine micron sizes. In this sodium aluminium silicate rock a remarkable natural chemical uniformity exists throughout the deposit.

Average chemical analysis of Grade A Lakefield Nepheline Syenite shows:

Component	%	*Component*	%
Silica (SiO_2)	60.8	Magnesia (MgO)	.1
Alumina (Al_2O_3)	23.3	Soda (Na_2O)	10.0
Iron (Fe_2O_3)	.075	Potash (K_2O)	4.5
Calcium (CaO)	.6	Loss in ignition	.6

The figures show a total of 99.975 per cent.

Physical properties of Lakefield Nepheline Syenite are:

Property	%	*Property*	%
Pyrometric cone equivalent	6-7	Hardness (mohs scale)	5.5
Specific gravity at 30 deg. C.	2.61	pH value (pH value 5 grms. in 60 c.c. distilled water)	9.6
Refractive index (crystalline)	1.53		

Since operations were begun, approximately 1,000,000 tons have been mined from a small area of only a few acres. Part of the company's geological programme includes diamond drilling to prove ore reserves for future operations. This drilling has taken place in the area adjacent to the present open cut, and indicates reserves of about 5,000,000 tons.

The present mining area represents only a small proportion of the 2,500 acres owned by the company.

All mining at Lakefield is done by open cut methods, and operations are carried on in five working levels to provide flexibility and efficiency.

Churn drills are used for the drilling of deep holes about 6 in. in dia. for primary blasting. After primary and secondary drilling and blasting, the broken ore is loaded into trucks by diesel shovels and hauled to the crushing plant. From the primary jaw crushers the crushed rock is conveyed to the mill for grinding and magnetic separation.

In the milling plant the rock is further crushed and ground in cone crushers and grinding rolls and is passed over screens until it is finally reduced to granular sand size of about 30 mesh. A rotary drier removes all moisture prior to screening and magnetic separation. The final stage of processing is the reduction of iron content from approximately 2 per cent Fe_2O_3 in the crude rock to .075 per cent in the finished grade. This is accomplished by combined high and low intensity magnetic separation.

To produce finely pulverized products in 200 and 270 mesh size, some of the granular 30 mesh sand is ground in pebble mills, while for producing powder in micron sizes, a fluid energy mill is used. This pulverizing is accomplished by the grinding of particles on each other in a medium of compressed air.

OPERATIONS IN 1954

The report of the consulting geologists to American Nepheline Ltd. states that last year 163,274 tons of ore and 43,351 tons of waste were quarried from the Cabin Ridge deposit, a considerable proportion of this material being obtained from the recently developed west portion of the area. No mining operations were carried out on the No. 2 East Ridge, and no additional drilling was accomplished on these deposits during the year.

During the year the Nephton plant treated 163,149 tons of crude ore to produce 111,137 tons of A-30 mesh material and 11,887 tons of by-products (including 1,567 tons of 2 in. crude ore). By re-grinding A-30 mesh material the Lakefield plant milled 26,608 tons of more finely ground products.

Reserves may be summarized as:

Site	*Tons*
Cabin Ridge and Cabin Ridge West*	2,166,526
No. 2 Ridge East*	1,659,700
Underground (West Area)†	815,000
North-East Deposits‡	1,500,000

*Assured. †Reasonably assured. ‡Indicated.

Following geological mapping to outline the extension of the nepheline syenite formation in the north-eastern part of the orebody, some widely spaced reconnaissance drilling was carried out during the summer of 1954. This drilling has not been sufficiently intense to prove definite tonnages of reserves, but subject to confirmation by more closely spaced drilling, about 1,500,000 tons are indicated of a grade material similar to that now being treated, with a strong possibility that this figure can be increased.

Research on Pumping Problems

In view of the immense amount of horse power in continuous service for pumping operations in the mining industry, it is evident that any small improvement in the efficiency of pumps would be a valuable gain. In several countries—notably in France, Switzerland and the United States—research on hydraulic machinery has been carried out for some decades on an extensive scale. In the United Kingdom, however, designers and manufacturers of pumps, turbines, valves, pipes, ducts and other associated equipment have been handicapped by the lack of adequate facilities for research. Laboratory techniques based on the use of scale models are being applied to problems of liquid flow by the Mechanical Engineering Research Laboratory, established in 1947 to supplement existing facilities for research. Some of the research activities undertaken by this laboratory are described in the following article.

The flow conditions in individual components of hydraulic machines often involve three-dimensional motion; they therefore tend to become complex and are still imperfectly understood.

In October, 1949, the Mechanical Engineering Research Laboratory started building a research station on a site of some sixty-seven acres at East Kilbride, near Glasgow. This establishment will eventually have a staff of between 600 and 700 and will then be the second largest research station administered by D.S.I.R.

STUDY OF FLUIDS

M.E.R.L. has seven main divisions, each of which is concerned with a particular branch of mechanical engineering. Its Mechanics of Fluids Division covers a very wide range of flow problems, encountered primarily in the heavy industries.

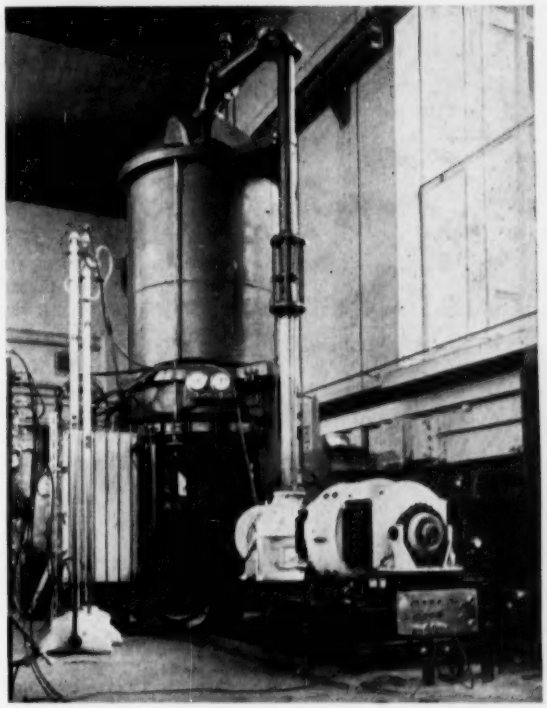
The fundamental research undertaken by this Division has as its immediate objective a closer understanding of basic principles affecting the design and operation of hydlaulic machinery. It is also intended that there should be a considerable proportion of applied research, particularly in fields where work on certain applied problems is urgently required. The complete results will materially assist manufacturers of pumping and associated equipment and will also be of considerable service to mining engineers.

Extensive facilities for model research have recently become available through the completion of the Hydraulic Machinery laboratory at East Kilbride, which was occupied at the end of last year and is among the finest establishments of its kind in the world. Six main experimental facilities are available, which are :

(1) A covered sump and main test bay about 120 ft. long by 50 ft. span for open circuit experiments on turbine and pump models, pipes, valves, etc.
(2) A closed water-circulating system, designed primarily for precision tests on pump models and for general pump research.
(3) A variable pressure water tunnel.
(4) An aerodynamics laboratory equipped with a variable pitch fan supplying 30,000 cu. ft. of air per min. at the design point.
(5) An oil and special fluids laboratory.
(6) Flow measurement facilities for calibrating laboratory sub-standards and industrial venturi meters.

Among the investigations at present in progress is a study of the flow conditions in a proprietary centrifugal pump of about 400 gal. per min. capacity, the aim being to find out where losses occur and how improvements can be made. The results so far obtained show that substantial energy losses can occur between the impeller output and the discharge flange.

The maximum speed at which a reciprocating pump can safely be operated is often limited by the performance of the self-acting valve. This factor is being studied in a pump so rigged that all the significant quantities can be varied. High-speed ciné photographs can be taken of valves in operation and pressure can be measured throughout the cycle. It is hoped that the information resulting from this investigation will benefit mining companies by allowing operating speeds to be increased, thus cutting down the size of the driving unit and of the pump itself.



Centrifugal pump test rig

HYDRAULIC TRANSPORT OF SOLIDS

Among the problems in which M.E.R.L. is interested is the hydraulic transport of solid material in pipes.

M.E.R.L.'s work is already contributing to existing knowledge in this relatively new field, for experiments in pumping peat have been carried out on behalf of the Department of Agriculture for Scotland, using a special reciprocating pump of 3 tons per hr. capacity.

The economic operation of peat-burning plants for power generation depends on the cost of the peat. A major difficulty is the cost of transportation, which might possibly be reduced by pumping raw peat from the bog to the drying field. The problem is one of losses, since peat in its raw state contains about 90 per cent moisture and is a fluid whose mechanical properties are unknown.

By the use of pressure gauges with rubber-mounted diaphragms and also by developing an instrument in which strain gauges were fixed to a thin metal diaphragm, empirical relations were found between pressure loss, velocity, and length of pipe.

The British Electrical Power Convention, 1955

The British Electrical Power Convention, 1955, opened in Brighton on June 27 and ended to-day. The Convention was held under the auspices of British Electrical Development Association. Sir Harry Railing, chairman and managing director of G.E.C., this year's president, opened the Convention.

The first British Electrical Power Convention was held in 1949, and this year the Convention represents 38 British electrical organizations embracing every section of the electricity supply industry with its 350,000 employees, and the manufacturing industries in which 600,000 workers produce £730,000,000 worth of goods per annum. The objects of the Convention are to foster the maximum degree of co-operation between the various sections, to encourage and develop good relationships within the industry, and to bring about the greatest development of electricity in the service of the community.

ELECTRICITY IN MINING

In so far as the mining industry is concerned, particular interest attached to the paper entitled *The Use of Electricity in the Coal Industry*, presented by B. L. Metcalf, M.I.E.E., M.I.Mech.E., M.I.Min.E., chief engineer, National Coal Board. Mr. Metcalf reviewed the position reached by the mining industry with regard to electrical development and stated the policy of the N.C.B. towards electrification, outlining the way in which the obstacles confronting the more rapid electrification of the collieries are being overcome. In 1953 the consumption of electricity was 4,159,000,000 units of which 1,554,000,000 units were generated at the N.C.B.'s own generating stations. During the same year the N.C.B. burned 9,790,000 tons of coal to generate this amount of electricity and to provide the large amount of direct steam power still being produced.

The paper also reviewed the more important applications of electricity such as winding, coal face mechanization, transport and lighting including references to the special problems in each of these fields. The important subject of the distribution of electrical energy under-ground was referred to and a description of some of the types of flameproof equipment included, with a break-down of the cost for a typical electrical installation for a mine producing 1½ million tons per annum. Reference was also made to the experimental work which the Board are doing in the development of gas turbines to burn very low percentages of methane derived from the workings on the one hand and to burn low grade coal on the other.

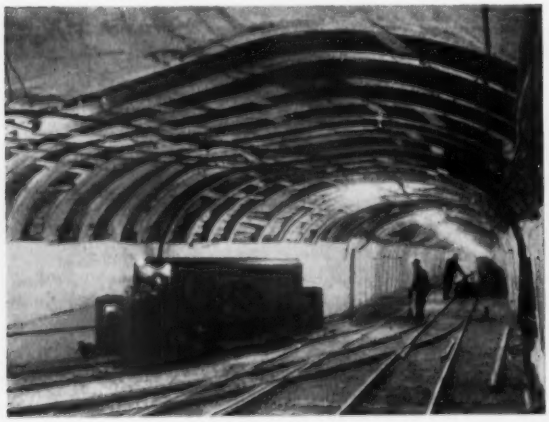
COMPREHENSIVE EXHIBITION

Associated with the Convention was an electrical exhibition which occupied this year approximately 23,000 sq. ft. Some 100 associations and companies displayed their products at the Exhibition.

Henry Wiggin and Co. Ltd. gave prominence to the availability of technical information concerning the use of Wiggin high-nickel alloys in their display, while *British Insulated Callender's Cables Ltd.* displayed its wide interest in electrical transmission with emphasis on the success of U.K. gas-filled cables in overseas markets. The shallow trunking of all types of lighting fitting and light duty power operated equipment were featured on the stand of *The Edison Swan Electric Co. Ltd.*, and the display of *Crompton Parkinson Ltd.* had as its centrepiece an animated mural illustrating the part played by the company's products in the distribution and use of electricity.

General Electric Co. Ltd. displayed a wide range of electrical appliances including the scale model of a G.E.C. photoelectric smoke detection and warning system, while *Metropolitan-Vickers Electrical Co. Ltd.* exhibited a 100-MW hydrogen cooled generator, a 120-MVA 275-kV transformer and scale models of the BO-BO and CO-CO locomotives. *The British Thomson-Houston Co Ltd.* displayed Mazda lamps and lighting equipment, an interesting fitting being the prototype of a new cradle introduced to simplify the maintenance of combined mercury and tungsten lighting. *The Telegraph Construction and Maintenance Co. Ltd.* showed paper-insulated power cables of all types for voltages up to 22kV with copper or aluminium conductors and lead or aluminium sheaths and other equipments, and *Pirelli-General Cable Works* concentrated mainly on illustrating one aspect of its activities, namely that of the super tension field. A sectioned three-core 132-kV oil-filled cable stop joint was on view.

The two groups of products featured in the display of *Monsanto Chemicals Ltd.* were Aroclors and Pyroclor, capacitor impregnants and transformer cooling fluids, and Lustrex polystyrene which has applications in the manufacture of electrical equipment.



A Ruston Hornsby flameproof 75 h.p. diesel double ended locomotive at Mid-Cannock Colliery

Effective underground illumination showing top end of creepers near pit bottom of Victoria Colliery

Exportation of Baryte from Yugoslavia

The output of Yugoslav baryte, in keeping with other products of the mineral industry exploited in that country, has expanded considerably during recent years, and impressive tonnages are now being exported notably to the United States, Austria, and the United Kingdom. The following article, from our Yugoslav correspondent, presents an overall picture of the baryte industry and the sites of producing mines, with particuar reference to the interest taken by Yugoslav producers in exportation.

Exports of baryte from Yugoslavia have expanded considerably in recent years, and during 1954 the United Kingdom became the third most important customer for this commodity. Out of a total of 93,708.9 tonnes exported in 1954, the United Kingdom absorbed 2,483.3 tonnes valued at 4,818,000 dinars as against 86,753.9 tonnes valued at 193,471,000 dinars bought by the United States and 4,471.7 tonnes valued at 21,570,000 dinars bought by Austria.

LARGE U.S. CONSUMPTION

More than 90 per cent of the baryte exported from Yugoslavia is destined for the United States, although interest in Yugoslav barytes has been growing in a number of countries recently, including the oil-producing countries of the Near and Middle East. As against a bare 2,474 tons of baryte exported from Yugoslavia in 1938, and 568.2 tons in 1947, exports in 1952 totalled 24,098 tons valued 52,984,000 dinars. In 1953 more than twice that quantity, namely 59,769 tons valued at 124,579,000 dinars were exported, while the increase in 1954 in respect of the volume exported during the preceding year exceeded 55 per cent. At the present time exports of barytes have reached the annual level of some 100,000 tons.

These quantities and values refer to raw baryte only. In addition, however, there is a tonnage of ground baryte exported in limited quantities. This limitation is the result of the restricted capacity of the mills in the producing centres. Nevertheless, exports of ground baryte have slowly risen from 2,717 tons valued at 25,886,000 dinars in 1952, to 3,395.5 tons valued at 28,563,000 dinars in 1954 with a contraction of export tonnage to 2,359.9 valued at 21,527,000 dinars in 1953. This compares with 129 tons in 1938.

Owing to their high barium sulphate content and to their chemical composition Yugoslav barytes find application in a wide variety of fields. Baryte of approximately 92 per cent $BaSO_4$ content has been found most suitable for weighting in oil drilling wash-outs because its high specific gravity is instrumental in overcoming the opposing gas pressure in oil wells. It is this application in the oilfields of the United States that has resulted in the extraordinary increase in the exports shipped across the North Atlantic in recent years. In fact, some 90 per cent of the Yugoslav baryte exported to the United States is used in the oilfields of that country, while only four per cent is absorbed by the paper and glass industries, three per cent by the rubber industry, and the balance by the chemical industry—more specifically in pharmaceuticals—and other branches of industry generally. In all these industries, baryte is used mainly as a filler, and preference is given to baryte having approximately 96 per cent $BaSO_4$ content.

OPERATIONAL SITES

Baryte is mined in various places throughout Yugoslavia. In Slovenia, the most westerly of the country's six republics, two important mines are operating near Skoflica, about seven-and-a-half miles to the south-east of Ljubljana, with their milling plants located nearby at Plese and Sitarjevec. Another mine is near Litija, approximately 20 miles to the east of Ljubljana.

About 50 miles south-east of this region, a new and productive mine in Croatia is being worked near Lokve on the main railway line from Zagreb to Rijeka. The latter town is Yugoslavia's most northerly seaport. The baryte mined at Lokve, the $BaSO_4$ content of which varies between 92 and 98 per cent, is easily exported as Rijeka is 32 miles away.

Some 90 miles to the south of Lokve a mine is producing baryte near Ridice. This mine is situated on the main railway line from Ridice to Split, the main seaport of Dalmatia. The mine is 107 miles from Split, and owing to considerations of distance the product is exported mainly through the port of Zadar, in Northern Dalmatia, 60 miles distant by road. Yet more important than the Ridice mine are the two neighbouring properties near Topusko and Velika Kladusa. The former town is a well known bathing resort to the south of Zagreb, and its thermal waters, iron and manganese ore deposits follow the thick layers of white and large-size crystalline barytes with regularity. Further inland, 32½ miles west of Sarajevo in Bosnia, is the important baryte mine in the neighbourhood of Kresevo.

Finally, in northern Montenegro, a new mine is being worked near Plevlje, where operations only began towards the end of 1953. Another new mine is shortly to be opened in the vicinity of Bor.

TREATMENT AND MARKETING

Baryte is generally mined with an admixture of clay. For milling, it is taken to the crushers by lorry, and is washed in rotating drums with counter currents of water. The granulation of the ground baryte ranges from dust to approximately 4 in. dia.

Prices for raw and ground baryte have revealed somewhat erratic development during recent years. The average annual price per tonne for the raw product fell from 2,199 dinars in 1952 to 2,084 dinars in 1953 but rose to 2,346 dinars in 1954.

For the same years the average annual price for ground baryte has shown a contracting tendency, from 9,527 dinars in 1952 to 9,120 dinars a year later and 8,412 dinars in 1954.

E. S. Hooper Appointed M.J. Display Advertisement Manager

Mr. Ernest S. Hooper, well-known to our advertisers in London and in the provinces has been appointed to the post of Display Advertisement Manager, with effect from July 1.

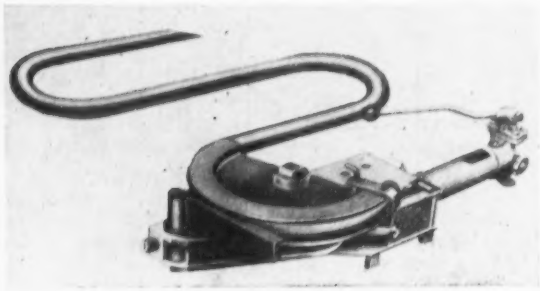
E. S. Hooper

Mr. Hooper, who has recently completed 25 years with the *M.J.*, joined the staff in 1929 and for a number of years before the war was responsible for our advertisement copy department. In 1938 he was appointed Accountant and Company Secretary, a position he occupied until the war, during which he served with the Royal Artillery in the Royal West African Frontier Force. On his return to civilian life, Mr. Hooper became the *M.J.'s* advertising representative in the provinces, subsequently extending his connection to London.

MACHINERY AND EQUIPMENT

A Senior Ratchet Bending Machine

For some time, Chamberlain Industries, Ltd., manufacturers of "Staffa" hydraulic tube bending machines, have considered there is a market for a light portable hydraulic machine capable of bending non-ferrous tubes up to 3 in. in diameter at a reasonable price. They have devised a unique type of bending head to fit onto the hand-operated self-contained pump to transfer the straight line thrust of the ram into a rotary movement which is necessary in order to bend light gauge tubes to



The Senior ratchet bending machine

prevent wrinkling and flattening during the bending operation. With the use of correct formers this senior ratchet bending machine is capable of bending ferrous and non-ferrous tubes of not less than 18 gauge wall thickness and up to 3 in. diameter to any angle up to and including 180 deg.

The unit consists mainly of two components, the frame in which is located the hydraulic pump, and bending arm which houses the adjustable back roller. This arm is rotated about the centre pin by means of a pawl of ample proportions fitted to the pump ram. All formers are easily and quickly mounted on the attachment and when used in conjuction with the special indicator plate fitted, automatically provide the correct "angle of lead" essential to the type of tube being bent. Incorporated also is a pointer and bending angle plate which gives the angle bend of a tube during any part of the operation.

Two of the main features of the machine are an automatic patent two-stage pump and the method of clamping the tube to the forming die allowing for the production of close set bends, with a minimum length of straight between radii. A great advantage is that bends up to 180 deg. can be achieved in one operation without removing the tube or adjustment to the forming die. The whole unit is self-contained and portable and no site fixing is necessary.

A Holman Subsidiary Company

A new company has been formed as a result of developments by Holman Bros. Ltd., in connection with dust and fume prevention in industry. This subsidiary, the Dustuctor Company Ltd., will manufacture and develop the Dustuctor Low Volume High Velocity system of dust, fume, flock and vapour extraction.

The system has widened the application of the principles of the Dryductor rock drill, which will still be manufactured by the main company. It has already been applied with success to equipment for the foundry industry, including portable surface grinders, swing grinders and fume rings used in pouring operations. It employs a small volume of high velocity air, applied at the source of dust or fumes, and is distinct from systems which depend on large volumes of air applied by means of fans or in other ways. New foundry regulations due to come into force in 1956 will emphasize the need for measures against dust.

The Dustuctor Company will develop, manufacture and supply the new equipment. Licences will be granted to approved firms for manufacture of associated equipment for dust prevention and disposal in connection with the Dustuctor L.V.H.V. system. Research and manufacture will be carried out a Hayle, Cornwall.

Chairman of the new company is A. T. Holman, general manager F. F. L. Morgan, and development engineer E. B. James.

Hygienic Installations for Developing Areas

One service not easily and readily supplied to developing industrial areas, such as new mines, is that of main sewage disposal.

The introduction of the Destrol Fulflush water closet represents an outstanding advance in modern hygienic sanitation. The unit is flushed by means of a hand pump with a chemically sterilized fluid from a special settling tank under the floor. All water used is in a closed circuit and the contents of the settling tank are drained off at regular intervals by an operation as clean and as simple as letting out bath water. Disintegration and disinfection take place in the settling tank as a result of the continuous action of the powerful Destrine Chemical mixed in water. Sewage is reduced to an odourless, harmless liquid that can be run off into a small soak-away pit.

Dutch Dredger Launching

A diesel electric cutter section dredger has been launched at a yard at Hardinxveld, The Netherlands. The craft is named the Brasil and is the largest of its type in the world. Dimensions are, length 230 ft., beam 39¼ ft., and moulded depth 13¾ ft. Three 1,800 h.p. diesel engines will provide power.

The craft is owned by the Dutch firm of contractors, N/V Boltje & Zn of Zwolle, who are at present executing large projects in Brazil.

A Special Drill Unit

The special drill unit developed by Atlas Diesel for use in the Kiruna iron ore mines in Sweden, here illustrated, was erroneously captioned the Joy M.W.6 Wagon Drill Carriage in *The Mining Journal Annual Review*, 1955. This special Atlas Diesel drill unit will be described in a forthcoming issue of *The Mining Journal*.

The Atlas Diesel B.U.K. 21K special drill unit

METALS, MINERALS AND ALLOYS

COPPER.—Demand for copper is virtually insatiable, Mr. Frank Russell, chairman of Cerro de Pasco has said, and supply will remain tight throughout 1955. The copper division of the Business and Defense Services Administration has published its opinion that the need to rebuild industries will keep consumer demand at a high level in the third quarter though it has not ventured to prophesy for the fourth. In addition to the building of stocks to a comfortable working level by all users, those consumers who have elected FIFO (first in, first out) for tax computation will be anxious to rebuild stocks before December 31 to the level of January 1, 1955. Copper removed from inventory will be assumed to have been bought at much less than the going price of 36 c. per lb. (it was 30 c. at the opening of the year) and tax will be adjusted accordingly.

All this, of course, is on the assumption that copper will go no higher than 36 c.; producers are said to be confident that they can hold the present level but it is known that they have been under pressure in the last week or two. If a strike were to hit the American copper producers while the dock strike in Britain continues to hold up the London price then the pressure might be difficult to resist. It is clear that June deliveries of copper in the United States were at about the same high rate as in May and heavy orders have been taken for as far forward as September. Chile is said to have little available copper this year. European demand appears certainly to have waned but it is thought that a good deal of copper destined for the United Kingdom will have found its way to the Continent during the dock strike. With the holiday season on hand at both sides of the Atlantic some easing of demand ought normally to be expected.

The outstanding uncertainty is the course of wage negotiations in the American copper industry. Negotiations in the steel industry are also important for the steel workers have declared that a wage increase that is less than that given to the automobile workers will make them "second class citizens". If the steel workers become "first class citizens" the non-ferrous metal workers particularly in copper will demand similar advances. Indeed the copper producers do not expect a strike until the course of events in the steel industry is more apparent. The strike poll, according to the Union, showed the following votes in favour of the strike any time after June 30 at these companies' plants: Phelps Dodge, 97 per cent; American Smelting and Refining, 93 per cent; Anaconda, 64 per cent; and other locals, 91 per cent. The Federal Conciliation Service is expected to move immedaitely to assist, whether a strike breaks out or not. If a large-scale strike does break out it will pose a nice problem for the American Government. Last year the Government refused to divert its copper to industry 'till after the strikes were settled. Would the Government now suspend copper diversions on the same ground that it would be strike breaking; or, if it did suspend them, could not the companies complain that pressure was being brought to bear on them?

Meanwhile it is understood that the copper bonus paid to Selection Trust employees will be based on the new fixed price of £280 per ton. The reactions of employees are not yet known but it will be interesting to watch what they will be. The idea of the bonus is understood to be to associate the employee's fortunes with those of the company by using the selling price of the product as an index profitability. In a sense, therefore, it is preferable to have an "independent" price rather than a price "fixed" by one party to a collective bargain. R.S.T. can justifiably argue that the present price of copper is not an index of profitability so much as an indication of impending danger; however, whatever the rights or wrongs of the matter, employees on bonus will suffer some loss of income. It is yet another example of the oddities of price fixing. It is, at the same time, some assurance that by reason of lower bonuses, lower royalties and so on, by no means all the fall in revenue from the fixed prices will be borne by R.S.T.

The African Mineworkers' Union has given notice of a dispute at Bancroft where two workers are said to have been dismissed. The Union has asked for a conciliation.

Mr. Norman Vincent, President of Mineral Exploration, has announced "what may prove to be one of the biggest copper discoveries ever made in Nova Scotia," adding that copper in the Rocky Brook area had been assayed at 3.3 per cent.

Mitsui Mining and Smelting Company is to send a survey mission to the Philippines to prepare for copper mining in Sipalay in the Negros Islands. It is understood that ore will be shipped to Japan for refining. There are said to be 10,000,000 tons of copper with an average purity of 1.1 per cent.

LEAD.—There has been an unusually strong demand for lead in New York on the basis of 15 c. per lb. with battery and cable-makers in the van. Mr. Frank Russell, chairman of Cerro de Pasco, has said that consumer demand shows no sign of slackening off in the near future. Meanwhile, the statistical recovery of the metal in the United States continues. End of May refined stocks in refiners' hands were down to 50,947 tons against 54,956 tons a month earlier; they have not been so low since January, 1953. Production was also down at 45,435 tons against 50,274 tons in April. It is clear that deliveries to the stockpile were at their lowest level since the start of the present buying programme.

The Belgian firm, Compagnie Royale Asturienne des Mines, has set up a new company in French Morocco, the Société Minière du Djebel Aouan. This new firm will deal mainly with lead and zinc ore mining in the Djebel Aouan area. Half the capital is held by the Belgian group.

TIN.—Tin has continued a firm market in New York reaching as high as 95 c. per lb. on June 28 and spot supplies have been tight. The price rose in response to the unrest in Singapore, to the threat of a strike of the American maritime unions and to the unrest in the domestic non-ferrous metals producing industries. All but the third have now disappeared, but that—and the uncertainty about the outcome of negotiations in the steel industry—have been enough to keep tin clearly above the level of 90 c. which is generally regarded in the United States as about the "right" price. In some quarters it is maintained that a steel strike—unless of exceptional duration—would not worry tinplate consumers unduly because they are now well stocked up. It is certainly true the boom which began in the early months of the year started on the basis of very substantial stocks. There are some who argue further that the recent stocking up has therefore been an insurance not against a steel strike but against the rise in the price of steel which they have long regarded as inevitable, strike or no strike. A 15 c. an hour increase, which is believed to be the minimum the steelworkers will accept, is thought likely to lead to an average steel rise of $6 a ton. Such an increase is confidently predicted for most steel within days of a settlement, but tinplate should not rise till October 1, when prices are due for re-assessment. However, most tinplate mills are fully booked till that day. In spite of this "speculative" demand, buying order books are confidently expected to stay full into the fourth quarter because of the increasing demand for tinplate especially among soft drink manufacturers.

Meanwhile, the French National Assembly has approved ratification of the International Tin Agreement by a large majority and the bill giving effect will go shortly before the Council of the Republic. French ratification is therefore within sight and the essential total of 333 consumer votes will therefore be reached. Indonesia is as far away from ratifying as ever. Indonesian reluctance, of course, is universally attributed to the fact that she is continuing to find satisfactory outlets for her production in the United States. In the sense that American stockpiling, plus world consumption, roughly equals world production she cannot be said to be inflicting hardship, but it would be useful to have the I.T.A. ratified before an emergency rather than have it start work in the middle of one. Further, it has been pointed out that buffer stocks held in Europe could mitigate price rises such as might have arisen from the interruption of supplies through the recent strikes in Singapore. This is not an unimportant point, for Malaya, Indonesia and Bolivia are all in a restless state.

At the Texas smelter itself a strike broke out on June 21, because of the unwillingness of the Tin Processing Corporation to make a 10 c. wage increase retrospective to March 1. The smelter is at a standstill. The Federal Facilities Corporation must shortly negotiate fresh contracts for concentrates from Bolivia and Indonesia since current contracts expire at the end of this month.

ZINC.—Interest in zinc has been subdued during the past week with the market still absorbing the rise to 12.50 c. per lb. East St Louis for prime western grade. Such business as has passed has represented largely the selling of metal previously earmarked for regular customers. The Bureau of Mines has shown that in the first four months of this year zinc consumption was up by 76,000 tons or 28 per cent as against the first four months of 1954. Zinc used by die casters is running at slightly more than that used in galvanizing. Over the four months of last year zinc consumption of galvanizers has increased by about 20,000 tons that of the brass mills by about 11,000 tons while that of the die casting industries has increased by about 44,000 tons.

ALUMINIUM.—Indicative of the tight statistical position existing for aluminium, and also providing a good deal of substance for the view that the "third-round expansion scheme" in the United States will soon be approved, is the news that the price of Canadian aluminium to U.K. consumers is being raised for the second time this year.

Aluminium Union Ltd., U.K. distributors for the Aluminium Ltd. group, have announced that as from to-day the price of primary 1/20K ingot 99½ per cent purity will be raised by £8 to £171 per ton, delivered to industrial users. At the beginning of this year the price was raised by £7 from the £156 per ton which had ruled throughout 1954.

The Reynolds Philippine Corporation's new aluminium plant at Highway 54, Rizal Province, has now started production. This factory, the first of its kind in the Far East, was constructed largely of aluminium sheets and its further expansion is expected in the near future.

The West German Government has submitted an ordinance to Parliament providing for the duty free import of up to 20,000 tons of aluminium in the second half of this year. The government described the West German aluminium production as inadequate to ensure enough supplies of raw aluminium to the processing industries. The present 12 per cent *ad valorem* duty on aluminium imports was not advantageous to the country's processing industry as the possibility of West German purchases of the metal at favourable prices on world markets had diminished since the beginning of the year.

COLUMBIUM-TANTALUM.—Under this heading in last week's issue the New York quotation for ferro-columbium was given as $12 per lb. At the end of last week the New York quotation for ferro-Columbium was reduced by $5.10 per lb. to establish a new base price of $6.90 per lb. of contained columbium. A new base price for ferro-tantalum-columbium was also established at the same time when its price was reduced by $1.60 per lb. to $4.65 per lb. for contained columbium plus titanium. These new prices, which will become effective on July 1, were announced by the Electro Metallurgical Company, a division of Union Carbide and Carbon Corporation, and were made possible by the withdrawal of the U.S. Government from the market which has resulted in a substantially lower ore cost.

CHROME.—In spite of an excellent overseas market, Southern Rhodesian chrome producers anticipate poor results this year unless rail facilities show an unexpected increase in October when the peak chrome haulage season begins, according to a spokesman of Rhodesia Chrome Ltd., of Selukwe. However, it is hoped that the coming into operation of the new railway to Lourenço Marques will enable the country's chrome stockpile of 400,000 tons to be cleared within about two years. Nevertheless, even after the new line has been opened, chrome will most likely continue to go to Beira, because of the facilities available from the £1,000,000 chrome loading plant installed there last year by the Portuguese Government. The new railway would, however, enable other traffic to be diverted thereby relieving pressure on the Beira route.

SILVER.—With the price of silver in London currently quoted at 78s. 0¼d. and 78s. 0½d. per oz. for cash and forward respectively, and at 90 c. per f.oz. in New York, the highest levels have been reached for several years. That being so, one would have thought that Mexico, the world's leading producer, would attach greater importance to the recent market price trends than has recently been reported. In fact Reuters, in a message from Mexico City, states that the Chamber of Mines did not attach too much significance to the recent upward tendency of the silver price on the world markets. This is, perhaps, because silver represents only 12 per cent of Mexican mined production and that its production is partly conditioned by the prices for lead and zinc with which ores Mexican silver is chiefly mined.

The Mexican Chamber of Mines viewed the price increases as evidence of a larger demand for silver for industrial usage, and of the intention of some nations to put more silver coins into circulation. The policy of the Bank of Mexico remains unchanged and is still regarded as the decisive influence in the silver market. Last year the Bank of Mexico continued to buy and sell Mexican production and the New York market absorbed all the surplus.

The London Metal Market

(From Our Metal Exchange Correspondent)

Hopes of an early settlement of the dock strike in this country have not materialized and in addition there is now a possibility of a fresh strike in the mining and smelting industry in the United States, scheduled to commence at midnight on June 30. This strike, if it takes place, will interfere with production of copper and intensify the already tight supply position which exists. Under these circumstances, the London Copper Market has shown further strength and the backwardation has fluctuated between about £6 and £10 per ton. On the Continent it seems that Germany is still in need of copper and likely to be buyers at any favourable opportunity.

In the Tin Market fluctuations both here and in the East have been modest, but the undertone seems fairly good. It was reported on June 24 that the French National Assembly approved a Bill by 506 votes against 100, authorizing the President of the Republic to ratify the International Tin Agreement. This now goes to the Senate and it is expected that the vote will be taken soon. Ratification by Belgium and Italy is expected to follow. On the producer side, ratification by Indonesia is still outstanding. On Thursday morning the Eastern price was equivalent to £743¼ per ton c.i.f. Europe.

Lead has been a dull market with very little interest being shown, although consumption seems to be well maintained, but there may be some slight falling off during the holiday months ahead.

In Zinc there has been very little movement, although prices have receded slightly from those prevailing immediately after the recent U.S. rise. As in the case of Lead, holiday influences may restrict consumption to some extent.

Closing prices and turnovers are given in the following table:

	June 23		June 30	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Copper				
Cash	£339	£340	£337	£337½
Three months	£329	£330	£332½	£333
Settlement	£340		£337½	
Week's turnover	2,480 tons		3,275 tons	
Tin				
Cash	£724	£725	£727½	£728
Three months	£724	£725	£726½	£727
Settlement	£725		£728	
Week's turnover	405 tons		360 tons	
Lead				
Current half month	£102½	£102¾	£103¼	£103½
Three months	£102¾	£102½	£102¾	£103
Week's turnover	2,575 tons		2,875 tons	
Zinc				
Current half month	£91¾	£91¼	£91½	£91¾
Three months	£90¼	£90½	£90¼	£90½
Week's turnover	2,850 tons		1,850 tons	

OTHER LONDON PRICES — JUNE 30

METALS

Aluminium, 99.5%, £163 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £210 per ton
Crude (70%) £200 per ton
Ore (60% basis) 22s./24s. nom. per unit, c.i.f.
Bismuth
(min. 2 cwt. lots) 16s. lb.
Cadmium (Empire) nominal
Chromium, 6s. 5d./7s. lb.
Cobalt, 21s. lb.
Gold, 251s. 9d.
Iridium, £30 oz. nom.
Manganese Metal (96%-98%) £255/£265 according to quantity
Magnesium, 2s. 4d. lb.
Nickel, 99.5% (home trade £519 per ton
Osmium, £27 oz. nom.
Osmiridium, £40 oz. nom.
Palladium, £6 12s. 6d./£7 5s. oz.
Platinum, £27 10s./£29
Rhodium, £40
Ruthenium, £16 oz.
Quicksilver, £108 ex-warehouse
Selenium, 43s. nom. per lb.
Silver, 78⅞d.-78⅞d. f.oz. spot and 76⅞d. f'd
Tellurium, 15s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 60% 8s. 3d. lb. c.i.f.
20% 3s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (semi-friable) 48% £13 per ton c.i.f.
" Refractory 45% .. £13 per ton c.i.f.
" Smalls 42% .. £10 2s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26-£27 d/d
Magnesite, Raw .. .. £10-£11 d/d
Molybdenite (85% basis) .. 105s. 3d.-108s. 1d. per unit c.i.f.
Wolfram and Scheelite (65%) .. 245s./250s. 6d. c.i.f.
Tungsten Metal Powder (98% Min. W.) .. 19s. 9d. nom. per lb. (home)
Ferro-tungsten (80%-85%) .. 16s. 9d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £37 6s. 3d. d/d per ton
Ferro-manganese, home .. £53 17s. 6d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. 81½d./82½d. per unit
Manganese Ore (38%-40%) .. 68½d./70½d. per unit
Brass Wire .. .. 3s. 2½d. per lb. basis
Brass Tubes, solid drawn .. 2s. 7d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

Stock Exchange business remained at a very high level although towards the end of the week activity declined. A reaction set in but a firmer trend was noticeable in late dealings on Wednesday. Overall the undertone remained confident.

Kaffirs enjoyed better conditions. There was renewed interest in Johannesburg and continental markets which were undeterred by news of a pending wage claim by the South African Mineworkers' Union. Finance houses were bought and some recent favourites went ahead strongly.

Among individual Rand mines, the young Far West Rand producers were in strong demand, particularly Vaal Reefs. This latter company was influenced by the intention of Middle Witwatersrand to investigate the possibility of opening up another mine in the area. Stilfontein were firm but unchanged. The company is doing well but has a large programme of capital expansion in front of it during the next few years. The continued rise in working costs, coupled with anxiety over the future labour situation, affected nearly all of the older properties which generally showed small declines.

In the Orange Free State, interest centred in the flotation of the Saaiplaas area. Consolidated Goldfields and Middle Witwatersrand are both interested. Underwriting of 11,000,000 10s. shares at par is taking place. It is estimated that it will take about six years to achieve an initial milling rate of 50,000 tons a month. Free State Geduld responded to the news that the water situation in No. 2 shaft was now under control. Loraine hardened following Mr. Oppenheimer's statement that the company may well become a prosperous uranium producer and that the absence of serious water difficulties or faulting was encouraging. The news from Merriespruit was considered rather disappointing and the shares lost the turn. Middle Witwatersrand rose due to interest in the Saaiplaas venture and most of the other market favourites recorded good gains.

There was little to report in the West African section which again suffered from lack of interest, but Australian mines benefited from the maintained dividend by Western Mining on the enlarged capital.

Coppers suffered a setback despite the strength of the metal price. Reports of impending labour trouble at Bancroft caused a fall in the shares and the fixed price policy of Rhodesian Selection caused this issue also to be neglected. Rio Tinto bounded ahead, due to its Canadian interests and the impending share split; the stock will command a much wider market in its new 10s. form. Selection Trust were another strong feature. Tanganyika Concessions were favoured, partly due to the go-ahead policy of the Union Minière and also to the interest in the Benguela Railway.

There was rather more activity in tin shares although price changes were erratic. There was little of interest to report concerning individual mines in this group.

Lead/zinc issues recorded varied price changes but certain features such as Consolidated Zinc encountered investment buying. Mount Isa fell below their recent peak despite the higher domestic price for copper in Australia. There was some disappointment that local financial interests were not taking a block of shares in the company. There was speculative enquiry for Lake George Mining at the lower level. It is felt that the company should soon begin to make profits again as milling is once more nearly at capacity. San Francisco Mines dropped due to Mexican taxation problems.

In the miscellaneous base metal section, South African coal shares were well to the fore. This move was encouraged by the dividend from South Witbank Coal Mines which was 21¼ per cent. as against 17½ per cent. which had been forecast. Associated Manganese fell. The company is still meeting difficulties in the transport of its ore by railway. Wankie Colliery went ahead strongly. In market circles it is hoped that a 10 per cent. dividend for the year may be forthcoming. The Union Minière report disclosed that this company now has a holding of over 500,000 Wankie shares in its portfolio.

Finance	Price June 29	+ or — on week
African & European	3 7/32	— 1/32
Anglo American Corpn.	8 5/16	+ 1/16
Anglo-French	22/-	+ 9d
Anglo Transvaal Consol.	27/6	
Central Mining (£1 shrs.)	50/-	+ 3/6
Consolidated Goldfields	62/6	+ 1/3
Consol. Mines Selection	39/4½	
East Rand Consols	2/1½	
General Mining	5½	
H.E. Prop.	10/3	+ 3d
Johnnies	41/3	+ 2/3
Rand Mines	3⅛	+ ⅛
Rand Selection	43/1½	— 7½d
Union Corporation	42/-	+ 3d
Vereeniging Estates	4½	+ 1/16
Writs	43/1½	+ 1/4½
West Wits	40/-	+ 3d
Rand Gold		
Blyvoors	28/3	— 9d
Brakpan	6/-	
Buffelsfontein	39/6	+ 2/6
City Deep	11/3	+ 9d
Consol. Main Reef	20/7½	— 1/1½
Crown	46/3	— 2/6
Daggas	56/3	+ 7½d
Dominion Reefs	34/3	+ 3d
Doornfontein	27/6	+ 1/9
Durban Deep	30/7½	
E. Champs	6/-	— 3d
E. Daggas	10/-	
E. Geduld (4s. units)	30/3	— 1/-
E. Rand Props.	3 1/16	
Geduld	4¼	— 1/16
Govt. Areas	5/9	— 6d
Grootvlei	21/3	+ 6d
Hartebeestfontein	41/6	+ 3/9
Libanon	8/-	— 3d
Luipaards Vlei	22/3	+ 3d
Marievale	21/-	— 6d
New Kleinfontein	7/-	— 6d
New Pioneer	16/-	+ 1/6
Randfontein	58/6	+ 6d
Robinson Deep	16/10½	— 1/10½
Rose Deep	14/6	
Simmer & Jack	3/7½	— 1½d
S.A. Lands	23/1½	— 10½d
Springs	2/3	
Stilfontein	27/3	
Sub Nigel	36/3	— 2/6
Vaal Reefs	37/-	+ 3/6
Van Dyk	3/6	+ 3d
Venterspost	13/-	
Vlakfontein	17/-	+ 3d
Vogelstruisbult	31/3	— 6d
West Driefontein	5¼	+ 1/16

Rand Gold contd.	Price June 29	+ or — on week
W. Rand Consolidated	46/10½	+ 7½d
Western Reefs	40/-	
O.F.S. Gold		
Freddies	4/9	+ 1/-
Freddies Consolidated	6/6	+ 7½d
F.S. Geduld	4 1/8	+ 1/16
Geoffries	18/6	+ 2/9
Harmony	36/-	+ 1/3
Loraine	10/6	+ 1/-
Lydenburg Estates	22/6	+ 2/6
Merriespruit	10/4½	— 1½d
Middle Wits	20/9	+ 2/9
Ofsits	3 1/16	— 1/16
President Brand	70/7½	+ 1/3
President Steyn	39/6	+ 3/6
St. Helena	31/3	+ 1/3
Virginia Ord.	14/1½	— 6d
Welkom	22/6	+ 1/6
Western Holdings	4 1/16	+ ¼
West African Gold		
Amalgamated Banket	2/3	
Ariston	6/6	
Ashanti	23/3	+ 1½d
Bibiani	4/7½	— 1½d
Bremang	1/4½	
G.C. Main Reef	3/6	+ 1½d
Konongo	3/-	
Lyndhurst Deep	1/6	
Marlu	1/3	
Taquah	2/4½	+ 1½d
Western Selection	10/4½	+ 1½d
Australian Gold		
Gold Mines of Kalgoorlie	13/-	
Great Boulder Prop.	10/4½	— 1½d
Lake View & Star	18/3	1/-
Mount Morgan	20/6	+ 1/3
North Kalgurli	7/4½	
Sons of Gwalia	5/3	
Western Mining	9/9	+ 7½d
Miscellaneous Gold		
Cam & Motor	9/4½	+ 6d
Champion Reef	3/9	
Falcon Mines	6/9	
Globe & Phoenix	23/6	
G.F. Rhodesian	6/6	
Motapa	1/4½	— 1½d
Mysore	4/3	
Nundydroog	5/10½	— 1½d
Ooregum	4/3	— 3d
St. John d'El Rey	13/1½	
Zams	55/-	+ 5/-

Diamonds and Platinum	Price June 29	+ or — on week
Anglo American Inv.	9¼	+ ¼
Casts	26/-	
Cons. Diam. of S.W.A.	7xD	
De Beers Defd. Bearer	6¾	+ ⅛
De Beers Pfd. Bearer	15½	+ ½
Pots Platinum	9/4½	— 1½d
Waterval	15/6	+ 9d
Copper		
Bancroft	42/-	— 1/3
Chartered	63/6	— 1/6
Esperanza	4/-	— 4½d
Messina	8 1/16	— 1/16
Nchanga	15	— 1/16
Rhod. Anglo-American	106/6	— 3/-
Rhod. Katanga	21/6	— 10½d
Rhodesian Selection	43/9	— 2/6
Rhokana	39½	
Rio Tinto	68	+ 6½d
Roan Antelope	27/4½	
Selection Trust	83/9	+ 4/4½
Tanks	8½	+ ½
Tharsis Sulphur Br.	7½	+ ¼
Tin (Eastern)		
Ayer Hitam	32/6xD	+ 3d
Gopeng	9/6xD	— 4½d
Hongkong	7/9	+ 3d
Ipoh	24/-	
Kamunting	8/-	— 9d
Kepong Dredging	3/-	— 3d
Kinta Tin Mines	13/9xD	— 3d
Malayan Dredging	9/9	+ 3d
Pahang	12/3	+ 3d
Pengkalen	12/3	+ 4½d
Petaling	9/9	+ 1½d
Rambutan	19/3	
Siamese Tin	8/-	+ 1½d
Southern Kinta	18/7½	+ 1½d
S. Malayan	8/1½	
S. Tronoh	10/-xD	— 4½d
Sungei Kinta	12/9xD	+ 3d
Tekka Taiping	7/1½	— 1½d
Tronoh	8/9xD	— 3d
Tin (Nigerian and Miscellaneous)		
Amalgamated Tin	13/7½	+ 1½d
Beralt Tin	32/9	— 9d
Bisichi	7/4½	— 1½d
British Tin Inv.	23/-	+ 9d
Ex-Lands Nigeria	2/9	+ 3d
Geevor Tin	13/1½	

Tin (Nigerian and Miscellaneous) contd.	Price June 29	+ or — on week
Gold & Base Metal	2/3	
Jantar Nigeria	6/4½	— 3d
Jos Tin Area	14/-	
Kaduna Prospectors	2/4½	+ 1½d
Kaduna Syndicate	3/-	+ 1½d
London Tin	8/9	
United Tin	2/-	— 1½d
Silver, Lead, Zinc		
Broken Hill South	55/-	— 6d
Burma Mines	3/4½	+ 1½d
Consol. Zinc	52/-xD	+ 1/4½
Lake George	9/6	— 9d
Mount Isa	56/3	— 1/3
New Broken Hill	39/4½	
North Broken Hill	76/3	— 7½d
Rhodesian Broken Hill	13/10½	+ 1½d
San Francisco Mines	21/-	— 2/7½
Uruwira	7/6	— 9d
Miscellaneous Base Metals and Coal		
Amal. Collieries of S.A.	49/-xD	+ 1/-
Associated Manganese	35/3	— 1/7½
Cape Asbestos	11/-	— 3d
Consol. Murchison	55/-	— 6/3
C.P. Manganese	35/6	— 6d
Natal Navigation	2½xD	
Turner & Newall	112/6	— 7½d
Wankie	18/7½	+ 10½
Witbank Colliery	4	
Canadian Mines		
Dome	$30	
Hollinger	$44	— 1½
Hudson Bay Mining	$113½	
International Nickel	$128½	+ ½
Mining Corpn. of Canada	£8½	+ ½
Noranda	$101	+ 2½
Quemont	£9½	+ ¼
Yukon	4/6	
Oil		
British Petroleum	115/-	— 5/9
Apex	31/6xD	
Attock	47/-	— 2/4½
Burmah	7¼	+ 1/16
Canadian Eagle	54/6	+ 3d
Mexican Eagle	22/-	
Shell	64½	— 1/16
Trinidad Leasehold	14/-	+ 4½d
T.P.D.	25/-	+ 6d
Ultramar	29/9	— 1/4½

COMPANY NEWS AND VIEWS

Rand Costs Higher During 1954

Speaking as President of the Transvaal and Orange Free State Chamber of Mines at Johannesburg earlier this week, Mr. Colin Anderson stated that South Africa's gold output at 12,682,328 f.oz. during 1954 was the highest for ten years. Revenue from gold mining, excluding uranium, moved up by £14,500,000 to £158,643,786. But despite these achievements 90 per cent of the higher gold revenue was absorbed by an increase in working costs which rose by more than £13,000,000 to a record level of £120,435,000. Expressed in shillings and pence per ton, the increase was 2s. 6d., bringing the overall cost per ton milled to 38s. 8d., the highest in the industry's 70 years' history.

Terms of Saaiplaas Issue Announced

A total of 11,000,000 shares of 10s. each from an authorized capital of 13,000,000 shares, is to be issued at par by Free State Saaiplaas Gold Mining Company, the new O.F.S. property which is being sponsored by the Consolidated Goldfields Group.

From this number, 5,586,615 shares will be offered to shareholders of the following companies in varying proportions. New Consolidated Free State Exploration one for two; Middle Witwatersrand (Western Areas) three for ten; New Free State Gold Estates, one for eight; H.E. Proprietory one for ten and New Witwatersrand Gold three for twenty. Of the remaining shares 3,068,009 will be subscribed at par by New Consolidated; Middle Wits, 1505,494; New Free State, 210,619; South African H.E. Proprietory, 450,619, and New Wits, 178,644.

Following the initial issue of 11,000,000 shares, the participating companies are to take up a further 1,135,118 Saaiplaas shares partly at par and partly as vendor consideration. A total of 864,882 shares will subsequently be left in reserve from the capital of £6,500,000.

Although comprehensive technical details regarding projected production and development plans have not yet been made available, it has been disclosed that the mine expects to reach an initial milling rate of 50,000 tons per month in about six years from the start of shaft sinking operations. It is intended to sink two shafts for haulage and another for ventilation. Drilling has indicated the existence of some 52,000,000 tons of payable gold ore underlying the property.

Although some time must elapse before the new Saaiplaas shares find their way to the market, the fact that the company is starting off with so large an initial capital must be expected to have a dampening effect upon enthusiasm for the new issue. The operation, in fact, may be regarded as an example of the Consolidated Goldfields Group outlook towards finance which does not, as a rule, follow the more usual post-war course of large loan capital operations. On the other hand, the method undertaken has the advantage that a large part of the funds necessary to open up the property will be secured at once and no gamble need therefore be taken on the future course of markets for some years. But under these conditions it would be unwise to expect the new Saaiplaas shares to open at a very great premium. Present indications would suggest that something in the region of 13s. might be possible.

Middle Wits Good Prospects

Mr. S. G. Menell, chairman of Middle Witwatersrand (Western Areas) speaking at the meeting of the company held earlier this week referred to three new South African gold mining ventures in which the company was interested.

Regarding the first of these, Free State Saaiplaas Gold, details of the participations which will be taken by interested parties are reported elsewhere together with initial technical details of the development programme. Meanwhile, so far as the new flotation concerns Middle Wits, the company's shareholders will have the right to subscribe at par for 2,147,865 10s. shares in the ratio of 3 Saaiplaas for every 10 Middle Wits held. In addition Middle Wits take up another 1,505,494 shares at par. Of the other two potential mining properties to which Mr. Menell referred, discussions concerning the establishment in the Van Den Heeversrust area of the O.F.S. of a new mine under the control of Anglo-Transvaal Consolidated had now reached the stage where specific recommendations could be made. But it was, perhaps, the reference to an area in the Klerksdorp district of the Transvaal to the north of Vaal Reefs and Western Reefs mines which will perhaps attract the most interest. Discussions, Mr. Menell stated, were taking place with the Anglo American Corporation and Vaal Reefs on the formation of a mining company to take the transfer of mineral rights in this area. The new company would be administered and controlled by Anglo-Vaal. Middle Wits would have a substantial interest in the Vendor and subscription rights.

The group reports and accounts of Middle Wits in respect of the year ended December 31, 1954, revealed a sharp advance in total revenue to £837,333 from £115,421. This was due mainly to sharedealing profits of £493,260 (£57,531) and sales of erven which brought in £280,675. After expenses a total of £702,905 (nil) was carried down and after taxes and appropriations including that of £493,159 to general reserves (nil) unappropriated profit carried forward was £133,778 (£175,192).

For those interested in participating in the initial financing of one actual and two potential new mines, Middle Wits offers an excellent opportunity.

Total quoted securities shown on the balance sheet at £1,644,110 had a market valuation of £3,598,650 as at December 31. Included in the investment portfolio are holdings in such mines as Buffelsfontein, Hartebeestfontein, Merriespruit, Stilfontein and Virginia Gold Mines.

Stilfontein's New Target of 150,000 Tons Monthly

At the annual meeting of Stilfontein Gold Mining Company, the Klerksdorp producer, Mr. Jack Scott, the chairman, announced that the ultimate milling rate of the company was to be 150,000 tons of ore monthly. This level would be achieved by progressive increases over about seven years. Initially, as already announced, the target would be 115,000 tons monthly. Although no exact estimate of the programme's total cost has been given, Mr. Scott said that during 1955 an amount of £1,500,000 would be involved. He also stated that the whole programme could be financed out of the company's resources and that there would be no necessity to raise fresh capital either by way of loans or share issues. The increased production would necessitate the creation of additional stope faces as soon as possible and development at depth would, therefore, take place sooner than originally envisaged. At their present price of around 27s. x.d. Stilfontein 5s. ordinary shares would appear to be fully valued.

Merrie's No. 2 Shaft Values

At the annual meeting of Merriespruit (Orange Free State) Gold Mining Company, the chairman, Mr. S. G. Menell, referred to the intersection last May by No 2 shaft of the leader reef and the basal reef horizon. Two bands of the leader reef were intersected between a depth of 3,189 ft. and 3,212 ft. but sampling gave negligible values. The horizon on the basal reef was intersected at 3,262 ft. but the reef was not developed and sampling of the contact between the normal hanging wall and footwall strata gave negligible values. The nearest development from No. 1 shaft was the 35th level drive east approximately 2,050 ft. west of No. 2 shaft. Values exposed over the last 1,380 ft. of this drive had averaged 7.66 dwt. over a width of 36.8 in. equivalent to 282 in. dwt. Of this footage sampled 1,090 ft. equal to 79 per cent were payable averaging 9.08 dwt. over a width of 37 in. equivalent to 336 in. dwt. As at June 22 the depth of No. 2 shaft was 3,452 ft. When the shaft reaches 3,510 ft. the 35th level station will be cut and it was estimated that approximately 2,200 ft. of cross-cutting and driving would remain to be accomplished in order to effect a connection between the two shafts on this level.

Anglo American Registers New Rhodesian Development Corporation

It has been announced that a new company, the Anglo American Rhodesian Development Corporation, with an authorized capital of £2,000,000 has been registered by the Anglo American Corporation of South Africa in conjunction with Rhodesian Anglo American. The objectives of this company are stated as the provisions of finance for development of the Federation's natural and other resources while at the same time assistance will be given for private undertakings and public works which are of value to the territories.

Although a total of £500,000 will be subscribed by the Anglo American Corporation and associated companies towards financing the new corporation, it is also intended to raise money for this purpose from other parts of the world.

Hendersons Earns Less: Pays Same

A decline in profits from coal to £141,915 from £176,219 was mainly responsible for Hendersons Transvaal Estates' lower profits during the year ended March 31, 1955. Investment income, however, moved up slightly to £54,638 from £49,598.

Year to Mar. 31	*Total Revenue*	*Taxation*	*Net Profit*	*Dividends*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1955	227,061	70,950	78,462	48,599	37,519	171,992
1954	251,713	84,759	88,933	46,486	37,403	163,554

Dividends on the issued ordinary capital of £563,697 in ordinary stock units of 4s. were maintained at 15 per cent—the previous year's level.

Two matters of importance will attract interest in the forthcoming statement to shareholders by the chairman, Sir Joseph Ball, at the meeting of the company due to be held in London on July 21. Firstly, in view of the current exceptionally high price for copper and the favourable statistical outlook for this metal, exploratory operations, at present being carried out on Hendersons' Farm Vryheid which lies adjacent to the Messina copper mines company in the Transvaal, could easily result in the active development of this property. Secondly, since Sir Joseph's statement to shareholders in August last year a good deal of progress has taken place in connection with exploration in the Bethal area on the Far Eastern Rand. As is well known, Mineral Holdings, a wholly owned subsidiary of Hendersons is interested in the drilling programme being carried out in the Bethal—Standerton district under the auspices of Consolidated Goldfields of South Africa and Union Corporation. In the likely event that mining companies will, in the near future, be floated to exploit these areas, Hendersons would be entitled to subsidiary interests therein.

At their present price of around 8s. the 4s. ordinary shares of the company stand to yield over 7 per cent. In view of the stable nature of the company as an investment trust, together with the above two potential growth prospects, this price would not appear excessive.

Eastern Rand Extensions' Share Dealing Profit

Share dealing profits amounting to £42,042 (£1,713) made by Eastern Rand Extensions during the year ended December 31, 1954, was mainly responsible for the sharp jump in total revenue earned to £64,594 from £10,350. Besides this, dividends received, mainly from the company's holding in Stilfontein Gold Mining Company, lifted investment income to £12,659 from £2,488. After all expenses the balance carried forward rose to £54,183 from £4,877.

A marked increase took place in the book cost of quoted securities shown on the balance sheet as at December 31 at £332,633 as compared with £219,866 previously. This was due mainly to the transfer of Hartebeestfontein and Buffelsfontein shares to the quoted lists of the Johannesburg and London Stock Exchanges. Market values also advanced sharply to £712,155 from £412,700. Amongst Eastern Rand's investment portfolio is a 30 per cent interest in Ellaton Gold Mining Company. As the shares of this property have no market quotation, a purchase of Eastern Rand is one method in which a participation may be taken. Mr. Jack Scott is chairman.

St. John d'El Rey Adopts "Partial Plan"

Presiding at the annual general meeting of St. John d'El Rey Mining, the Brazilian gold producer, Lord Rathcavan, stated that the previous full projected capital programme envisaged by the company had been postponed in favour of a modified scheme known as the "Partial Plan". The object of this programme was to obtain a substantial increase in production—to a total of from 40,000 to 45,000 tons of ore crushed a month at the earliest possible moment instead of awaiting the completion of the new vertical shaft. If this production rate could be attained, he said, many of the company's difficulties would be solved. Referring to the current financial year, Lord Rathcavan emphasized the dependence of prospects in the coming six months upon two factors. Firstly, the volume of production together with the extra charge the company might have to meet for insalubrity pay. And secondly, the most unstable political and economic situation in Brazil which was not likely to improve until after the presidential election next October. Production figures so far reported for the first five months of the year total 119,100 tons (129,900 tons) valued at £504,000 (£588,967). Owing to the recent strike at the property May operations would show a deficit while April yielded a surplus of £12,100.

Tekka-Taiping's Uncertain Outlook

A materially higher recovery of tin ore per cubic yard together with a greater volume of ground treated were responsible for a marked increase in production by Tekka-Taiping during the year ended October 31, 1954.

Year to Oct. 31	*Treated cu. yd.*	*Per cubic yard Yield*	*Cost*	*Output in tons*	*Avge price per ton conc.*		
	(000)	(*lb.*)	(*d.*)	(*conc.*)	£	*s.*	*d.*
1954	2,390.1	0.36	8.4	379.5	408	14	9
1953	2,027.3	0.21	10.1	194.0	442	11	0

Dividends on the issued ordinary capital of £399,980 in shares of £1 were accordingly increased to 12½ per cent as compared with only 2½ per cent in respect of the preceding year.

In his statement to shareholders Mr. Donald W. Thomas, the chairman, disclosed that during seven months since the beginning of the current financial year the company's dredge had been operating in virgin ground and a total of 186½ tons of tin ore had been recovered. This was slightly below the previous year's average. Moreover, as the course of the dredge must now follow ground which contains lower values, some falling off in production must be expected during the remainder of the year. Nevertheless, as production so far measures up well to the past year's high level the company's distribution for the current year would appear to have a good chance of being maintained. Of course total payments must be conditioned by appropriations for capital expenditure and reserves but there seems no particular reason why these should exceed the past year's level.

Year to Oct. 31	*Total Revenue*	*Taxation*	*Net* Profit*	*Dividend*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1954	191,830	46,894	28,197	27,498	14,500	37,176
1953	139,106	16,471	12,849	5,500	Nil	34,564

* Before £10,546 (1953 - £10,000) written off capital expenditure.

Despite this not unfavourable outlook, however, public reluctance to buy the £1 ordinary shares is apparent from the present price of about 7s. at which they now stand to yield nearly 34 per cent—one of the highest returns to be found in the tin section. But when it is remembered that during 1953 owing to difficult conditions the possibility of shutting down the dredge was under consideration, this attitude may, to some extent be understandable. Admittedly at that time the price of tin fell temporarily much below its present level, but investors' confidence was shaken.

It is undoubtedly true to say that a good deal of interest would be drawn towards a statement by the company as to what indication the present technical position holds for the future. For instance, are further difficult dredging conditions expected, and what ore reserves have been proved and how long might they last at the present rate of production ?

Kent (F.M.S.) Declares Further Interim Dividend

A further interim dividend of 15 per cent in respect of the year ended December 31, 1954, on its issued ordinary capital of £105,000 in shares of 2s., has been declared by Kent F.M.S. Tin Dredging. This has been made possible by agreement having been reached with the Inland Revenue on long-outstanding taxation claims. This latest distribution follows the recent declaration on January 21 of a second interim dividend on account of profits earned in respect of the same year.

National Mining Maintains 10 Per Cent

Despite a slight decline in total revenue due mainly to falls in profits from share dealing and underwriting commissions, The National Mining Corporation has maintained its 10 per cent dividend on the issued ordinary capital of £340,314 in shares of 2s. 6d. at the previous year's level of 10 per cent.

Year to Mar. 31	*Total Revenue*	*Taxation*	*Net* Profit*	*Dividends*	*To Reserve*	*Carry Forward*
	£	£	£	£	£	£
1955	45,432	598	35,583	19,568	10,000	22,902
1954	48,861	269	38,226	18,717	10,000	17,742

* Excluding £855 representing expenses to complete surrender of leases in Trinidad. (1954 - £2,842 was written off in respect of capital reorganisation.)

An interesting addition has been made to the statistical data provided by the company in the form of a breakdown of investments. This was included with Major General W. W. Richards' statement to shareholders and disclosed that oil represented 44 per cent of the total market value of quoted securities. Interests in West African Mines amounted to 28 per cent, while South African, Rhodesian and miscellaneous mines accounted

for a further 16 per cent. The remaining 12 per cent was made up of holdings in commercial and industrial enterprises. In the mining sphere several notable additions have been made to the portfolio during the past financial year. There included purchases of Freddies Consolidated, General Exploration, Orange Free State, Loraine Gold Mines, St. Helena and Virginia Gold Mines. That the corporation has taken the opportunity of dull markets to take a participation in these properties may well prove to have been a wise move before long. Quoted investments shown on the balance sheet at £258,799 had as at March 31 a market valuation of £300,706. Meeting, July 19, London.

El Oro Not Yet to Enter Dividend List

In his statement to shareholders of El Oro Mining & Exploration Company, Mr. M. Woodbine Parish, chairman and managing director stated that, the company would not yet enter the dividend list owing to the necessity of building up real assets. However, after establishing strong enough reserve position to provide against all but the most abnormal conditions, thus safeguarding the company from the very wide fluctuations to be expected in a finance business, it was the intention to pay a dividend. Mr. Parish continued, that it would be foolish to expect progress of the magnitude achieved during the past year to December 31, 1954, during which the net profits rose to £59,449 from £36,247 and net assets to £282,382 from £222,933, to be achieved every year. Pauses, and indeed setbacks, must be expected. But in the medium and long term future, progress should be continued. Referring to the current year Mr. Parish warned of the difficulties which had to be faced. The rise in the bank rate had reduced market values of fixed interest securities, while the General Services Administration had announced its impending withdrawal from the columbium and tantalum market. Moreover, the company had a large number of investments in developing and producing gold mines which were traditionally sensitive to severe market fluctuations.

Modder B Gives Notice of Mining Cessation : Capital Reduction

It has been announced by Modderfontein B Gold Mines that the statutory three months' notice to the Government in terms of the Gold Law of a possible cessation of mining operations has been given. Due to decreases in the limited and scattered tonnages of payable ore in available reserve coupled with a decline in both tonnages and grade of ore from subsidiary sources at the mine, it was becoming increasingly difficult to maintain profitable operations. Accordingly, available reserves are being extracted to the best advantage but even a slight increase in working costs—or decrease in grade—is likely to render operations unprofitable. Nevertheless, every effort will be made to continue profitable operations at the mine beyond the period of notice.

At the company's meeting held recently, a special resolution was passed providing for a further reduction of capital to £210,000 in 2,800,000 shares of 1s. 6d. by a return of 6d. in cash to shareholders.

Kaduna Prospectors Nearing End of Economic Life

In his statement to shareholders of Kaduna Prospectors, the Nigerian tin producer, Mr. Hugh Vivian the chairman felt it necessary to point out that the mine appeared to be nearing the end of its economic life. Only one area, he said, remained to be completely prospected and so far results had been definitely disappointing. This, in conjunction with ever increasing costs of wages and materials, together with the continued unsatisfactory price for tin, had rendered a considerable amount of low grade ground unpayable. In these circumstances the future of the company was regarded with considerable anxiety. The policy would, however, be to continue operations so long as there appeared to be a prospect of some profit, while at the same time avoiding a depletion of the company's satisfactory financial assets. Output for the current year up to the end of May has been 28 tons as compared with 31 tons in respect of the corresponding previous period.

New Prospecting Licence For Geita

It has been announced by Kentan Gold Areas, whose main interest is a 76 per cent holding in the issued share capital of Geita Gold Mining, the Tanganyika gold producer, that a Special Exclusive Prospecting Licence has been granted to the company.

The area concerned is approximately 123 square miles which include the claim and lease areas which have already been granted, brings the area now available for exclusive prospecting by Geita to 143 square miles.

Lower Net Profits Earned by Associated Manganese

Net profits earned by The Associated Manganese Mines of South Africa during the year ended December 31, 1954, fell to £769,771 from £1,323,050 in the preceding year. Of this figure, taxation absorbed £224,523 (£403,554) while preference and ordinary dividends took £276,554 (£781,526). An amount of £700,000 was transferred to capital reserve (1953—£150,000 transferred to general reserve) was offset to a large extent by a transfer of £300,000 from general reserve, and the balance of unappropriated profits fell to £69,664 from £200,970. Mr. S. G. Menell is chairman.

Selayang's Increased Production

Operations carried out by Selayang Tin Dredging during the year ended September 30, 1954, resulted in the recovery of 227 tons of tin concentrates as compared with 175 tons previously. It would, however, be wrong to make a strict comparison between the two years as during 1953 the company's dredging operations were suspended for a period of four months whilst the hull of the pontoon was being replated and other general repairs effected.

The increased production achieved was reflected in total revenue earned which rose to £101,859 from £87,614. But the full benefit of the higher earnings was largely offset by a rise in Malayan expenditure to £93,341 from £78,749. Accordingly, net profits remained virtually unchanged at £3,937 as against £3,956 previously. Dividends of 20 per cent (nil) on the issued ordinary capital of £43,750 in shares of 1s. absorbed £4,922 and after writing off £2,369 the balance carried forward declined slightly to £21,023 from £24,376. Mr. Thomas James Bond is chairman. Meeting, London, July 5.

Company Shorts

De-watering of Kansanshi Main Shaft South Area Commenced.—Speaking at the meeting of Rhodesia-Katanga Company at the recent meeting, Captain Charles Waterhouse, the chairman, stated that de-watering of the main south shaft area at the Kansanshi Mine was started on May 9 through the Main South and D.4 shafts. The three hundred foot level at the Main South had now been de-watered, he said.

A report had also been received from the Kansanshi property's consulting engineers, the Anglo American Corporation, which stated that pending installation of the large generating sets, two 150 kW sets and 4 portable compressors had been commissioned. It was this that had made possible the commencement of de-watering programme.

No time was being lost, said Captain Waterhouse, in opening up the property and constructing the necessary accommodation. Already, satisfactory progress had been made in acquiring items for the concentration plant from secondhand sources.

Paringa's U.K. Fluorspar Property.—An interesting part of Mr. Thomas Kenny's speech to shareholders of Paringa Mining and Exploration Company concerned the fluorspar venture in the north of England. A company has been formed, he said, under the name of Dale Minerals with a capital of £25,000, of which Paringa held a majority interest. It is hoped that production, which will involve treating fluorspar dumps in the Middleton-in-Teesdale area, will start soon. As the Wheal Fortune Lead Mine, the Australian property in which Paringa is primarily interested, has now for all practical purposes been placed on a care and maintenance basis, Dale Minerals, though a very modest project, might form the framework on which Paringa could be reconstructed.

Sales of Equipment Progressing at West Vlakfontein.—Sales of equipment and reclaimed materials at West Vlakfontein Gold Mining Company progressed during the year ended December 31, 1954. The amount of £31, 778 consequently realized was credited to shaft sinking, development and equipment. Since the end of the year further sales have brought in approximately £112,000. Major-General W. W. Richards is chairman.

West Spaarwater remains on Caretaking Basis.—The accounts of West Spaarwater for the year ended December 31, 1954, confirm that no mining operations were carried out and that the property was maintained on a caretaking basis. General expenses during the twelve months, including interest payable of £1,030, totalled £2,522. Mining lease rentals amounted to £121 but against this a refund of £916 was received in respect of payments made during 1953 whilst the application for a reduction in the lease area was still pending. Sundry revenue amounted to £245. Mr. S. F. Dench is chairman.

Mining Men and Matters

Mr. B. L. Bernstein has been elected president and **Mr. C. B. Anderson** and **Mr. P. S. Hammond** have been elected vice-presidents of The Transvaal and Orange Free State Chamber of Mines for the year 1955-56.

Mr. Alan F. Baer has been appointed a director of Metal Traders.

The Birtley Co. Ltd. have entered into an agreement with Athey Products Corporation of Chicago, U.S.A., covering the manufacture of rubber tyred and track type wagons under licence from them and to their technical designs and specifications. These wagons will be manufactured under the name of "Birtley" and the arrangement is that The Birtley Company are free to sell these equipments throughout the world, through APCOR dealers who will be responsible for servicing and parts provisioning. Production arrangements are now being made by The Birtley Company, with a view to initial equipments being available early in 1956 and details of the product range will be announced at an early date.

The Birtley Company are in production already on the types 9A and 9S Cable Operated Bulldozers to the technical design and specification of Caterpillar Tractor Co.

Mr. J. H. Mason has been appointed a director of Vivian, Younger and Bond.

Mr. W. Marshall Clark, Mr. R. B. Hagart and **Mr. P. J. Oppenheimer** have been appointed directors of De Beers Consolidated to fill the vacancies caused through the deaths of **Sir Robert Kotze, Mr. E. H. Farrer** and **Sir Herbert Stanley.**

The Chartered Bank of India, Australia and China has opened a branch at Kuantan in the State of Pahang, Federation of Malaya.

Gold Mine Returns

WEST AFRICAN GOLD

Company	May, 1955			Months since year ended	Current Financial Year Total to date			Last Financial Year Total to date		
	Tons (000)	Yield (oz.)	Profit (£000)		Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Amal. Banket	75·9	11,443	28·1	8	658·9	101,550	266·2	548·7	87,772	124·2
Ariston Gold	36·6	10,632	43·8	8	196·9	65,760	370·3	258·3	84,194	381·3
Ashanti	26·5	16,150	70·7	8	198·5	130,196	562·2	196·0	126,234	515·3
Bibiani (1927)	30·0	6,250	11·1	8	239·0	50,600	107·5	243·0	50,305	67·5
Bremang*	852·0	3,734	11·9	5	3360·0	14,879	24·2	1989·3	7,624	L28·7
G.C.M. Reef	9·3	3,344	8·8	11	105·7	40,916	135·5	92·6	41,991	130·2
Konongo	3·3	3,142	16·1	8	27·2	25,410	126·6	21·6	22,370	101·0
Lyndhurst D'p	1·0	1,104	5·1	8	8·2	9,158	47·8	8·1	9,339	44·8
Taquah & Abos.	28·5	5,648	1·3	2	57·5	11,323	2·3	54·0	11,821	8·3

* Cu. yds. dredged. L denotes loss. Profit figures include premium revenue.

SOUTHERN RHODESIAN GOLD

Company	May, 1955			Months since year end	Current Financial Year Total to date			Last Financial Year Total to date		
	Tons (000)	Yield (oz.)	Profit (£000)		Tons (000)	Yield (oz.)	Profit (£000)	Tons (000)	Yield (oz.)	Profit (£000)
Arcturus	3·0	968	3·4	11	33·6	10,128	33·8	33·8	—	34·4
Cam & Motor	25·0	7,568	41·0	9	217·3	67,908	371·5	218·2	68,262	406·8
Falcon Mines	18·0	3,216	9·2†	8	138·3	25,104	89·8	134·3	21,847	55·7
Globe & Phoenix	6·1	3,546	23·8	5	30·3	17,673	117·4	30·4	17,907	116·5
Motapa Gold*	17·9	2,397	1·1	5	78·4	10,959	2·3	91·4	12,500	17·7
Muriel Mine	3·3	1,405	10·0	11	45·0	11,387	110·6	25·8	—	87·4
Tebekwe	6·6	935	1·4	11	80·1	10,917	14·6	89·0	—	26·9

* Excluding premium gold sales. L indicates a loss.
† In addition £3,338 from accumulated concentrates retreated from Dalny Mine.

THE RIO TINTO COMPANY LIMITED

CAPITAL REORGANIZATION PROPOSALS

DEVELOPMENT OF COMMONWEALTH MINING INTERESTS

THE EARL OF BESSBOROUGH'S SPEECH

The 82nd annual general meeting of The Rio Tinto Company, Ltd., was held on June 30 at Winchester House, Old Broad Street, London, E.C.2. **The Rt. Hon. The Earl of Bessborough, G.C.M.G.** (the chairman) presiding.

Mr. P. H. Truscott (the Secretary) read the notice convening the meeting and the report of the auditors.

The Chairman said:—Ladies and Gentlemen:

I propose with your agreement to take the Report and Accounts as read. Before dealing with the latter I feel that I should first draw your attention to the new structure of the Rio Tinto organization which is set out in detail in the Report of the Directors.

As a result of considerable increased activity in the Commonwealth it has become necessary for us to create a number of subsidiary companies in the United Kingdom and overseas to carry out the various functions of investment holding, exploration, management and technical services. The Rio Tinto Company Limited is now, therefore, the parent company of what is already becoming known as the "Rio Tinto group". In doing what I have described we have reversed the previous trend of the Company in owning overseas mining properties directly from London in favour of a system whereby there will be established in each area of operations a holding company capable of exercising autonomy together with its subsidiary companies.

To turn now to the Accounts, you will notice that during the year under review there were no trading profits, since it was an integral term of the agreement for the sale of the Spanish assets that the trading profit for the year 1954 would be for the account of the Spanish Company. Nevertheless, the profit carried to the Appropriation Account shows an increase from £607,213 in 1953 to £648,404 in 1954. This increase is due to the additional income which has been received from our Rhodesian investments. Similarly, the absence of a trading profit for the year reduced quite considerably the provision necessary for taxation, but you will share my regret that the incidence of tax still bears very heavily on the investment income.

Although your Company is now a holding company carrying on no trading operations it was still doing exploration work during 1954. It is inherent in any active exploration and development programme that less promising areas and projects should from time to time have to be discarded in favour of those showing more promise. It is, therefore, understandable that as a result of much activity in many fields there was for the year 1954 abortive expenditure on exploration and development of £210,755. The remaining exploration work was taken over at January 1, 1955, at cost by the newly formed subsidiary, Rio Tinto Finance and Exploration Limited.

INVESTMENTS

Your Company continues to hold considerable investments in Rhokana and Nchanga, the shares of which have shown substantial increases in value. In fact, the market valuation of all quoted investments at the end of the year under review was £20,484,508 compared with £10,481,162 at the end of the previous year. The Directors' valuation of unquoted investments increased from £418,921 to £3,698,240, which is largely due to the investment in the new Spanish Company which purchased the assets in Spain of The Rio Tinto Company Limited. Thus, the valuation of all investments at £24,182,748 was at the end of the year almost three times as great as the book value shown in the balance sheet and has since increased quite considerably.

CAPITAL REORGANIZATION

In my speech of August 12, 1954, the date when you approved the proposal for the sale of the Company's property and assets in Spain, I referred to the many practical difficulties in the way of distributing any part of the proceeds. The legal and tax problems involved are extremely difficult to solve and your directors have had also to bear in mind that a substantial proportion of the share capital of the Company is held in France where capital distributions are subject to heavy taxation. In making its recommendations for capital reorganization your Board have been guided by two main considerations. In the first place, it was thought that the Company's share capital should now be brought into line with the cost of its investment portfolio, including investments in subsidiary companies. The proposal to issue to the holder of each Ordinary share of £5 an additional Ordinary share of £5 goes part of the way towards achieving a more realistic capitalization of the Company.

The second consideration was that your Directors thought that some shareholders might expect to receive a cash distribution. At the same time the cash requirements of the Rio Tinto group for exploration and development within the Commonwealth have been increasing. To meet these conflicting needs

and to complete the scheme of capitalization your Directors have proposed the issue of one £5 Second Preference Share with dividend at 5½% per annum for every two Ordinary Shares now held. Shareholders who wish to realize part of their interest in the Company without reducing their equity holding can, therefore, sell the Second Preference Shares and the offer to purchase these shares at par by Messrs. N. M. Rothschild and Sons provides shareholders with the opportunity of obtaining cash without delay.

DEVELOPMENT OF COMMONWEALTH MINING INTERESTS

With regard to the policy of developing mining interests in the Commonwealth, I should tell you that the exploration work of your subsidiaries overseas is continuing most actively and, as you know, in most cases we work with associates. In Rhodesia, we are working in collaboration with The British South Africa Company and with Tanganyika Concessions Limited and are making some progress in assessing the mineral possibilities of certain areas there.

In Australia we are still carrying out basic exploration, mainly in the Northern Territory, and for the time being this work is being performed under the direct auspices of Rio Tinto Finance and Exploration Limited (United Kingdom).

In Canada we are exploring in close association with Sogemines. During the year under review we were fortunate enough to obtain the services of Dr. Duncan Derry, a leading Canadian geologist, who is now the senior resident executive in charge of North American exploration.

ATOMIC ENERGY PROGRAMMES

I should now like to refer to three important developments which have taken place since the last Annual General Meeting. In Australia, quite apart from basic exploration to which I have referred, the Rio Tinto group in early 1955 concluded negotiations whereby one of your Australian subsidiaries acquired a 51% interest in Mary Kathleen Uranium Limited, the property of which is situated in Queensland. A programme of drilling and metallurgical testing to find out whether this area can sustain an uranium treatment plant of economic size is now being carried out. Provided that the results of this testing programme are sufficiently encouraging to ensure a profitable sales contract for the output arrangements will be made to provide the necessary capital for the mine and treatment plant.

CANADA

Turning again to Canada, during 1954 your Company purchased an interest in The Brunswick Mining and Smelting Corporation which owns important lead, zinc and pyrites ore bodies close to the eastern seaboard in New Brunswick. It will be some time before full scale production is achieved although a pilot mill is already in operation. I believe that this is a valuable long-term investment for the group.

The most important development in the past six months has been the conclusion of negotiations whereby Algom Uranium Mines Limited was financed by a predominantly British group headed by Rio Tinto (Canada) Limited. As a term of the agreement another of your Canadian subsidiaries obtained the technical management of this property, which is one of the largest uranium mines so far discovered. I should like to say how grateful your Company is for the very great assistance and co-operation which was received throughout the intricate negotiations from the appropriate Government authorities in Canada and and the United Kingdom. We have had excellent co-operation from Mr. Joseph Hirshhorn, Mr. Franc Joubin and other members of the Hirshhorn organization who were responsible for the initial discovery and proving of the Algom deposits. We were fortunate in having on the staff of our Canadian exploration company, Dr. E. B. Gillanders, who was for several years the technical head of the Canadian Government Eldorado Uranium Mines and who has now undertaken on behalf of our Canadian subsidiary the technical direction required to bring the Algom deposits into production.

These deposits are well located in the Blind River area of Ontario on the northern shores of Lake Huron. The general area of Blind River is of very great interest as far as uranium is concerned and its discovery places Canada in the forefront of the long-range producers of this commodity. This, together with the encouraging signs of radio-active minerals in Australia and the resources of South Africa, indicates the importance which the Commonwealth is now assuming as a long term producer of the raw materials for the atomic energy programmes of the free nations of the world.

It is encouraging to think that by the time Britain's nuclear power programme is in full development, the greater part of the free world's uranium will almost certainly come from the Commonwealth. It seems to me reasonable to expect that the United Kingdom can look forward to being able to purchase her supplies from her fellow members of the Commonwealth and that they in turn can be assured of a continuing outlet for much of their production which may be surplus to their own requirements.

It is not thought that this material is likely to be superseded by any other radio-active mineral in the near future, provided that those who are responsible for production fulfil requirements at an economic cost; this I believe we can do.

This new form of energy is an indispensable element in helping to raise the standard of living in the world, not only in the under-developed countries where power resources have not hitherto been available, but also in highly industrialized areas where traditional resources of power are proving inadequate for the needs of modern society. I am happy to think, therefore, that Rio Tinto already has uranium interests in two of the three areas to which I have referred.

GROUP'S IMPORTANT ROLE

I have now given you an outline of the group's activities, from which you will realize that the Company in the last year or two has been passing through a period of transition and, while still retaining an important interest in Spain, is beginning to emerge as the head of a group carrying out exploration and mining activities in the Commonwealth.

It will, of course, be realized that the adoption of this policy by your Board, while designed to consolidate the position of the Company, by ensuring as far as possible that it will always have among its investments Mines that will be coming into production, cannot produce in itself any immediate increase in revenue for the shareholders. There is an inevitable time lag between the equipping of a mine and its reaching the revenue-earning stage, and during such periods shareholders' income will depend primarily upon the existing Investment Portfolio, including dividend income from its holdings in the Spanish Mine.

Furthermore, if our recent experience is any guide, further opportunities for profitable investment in the Commonwealth may arise in the future. I feel you will wish your Board to take full advantage of any such opportunities and should these arise at any time I may return to you for the provision of further capital.

DIVIDEND

This year the Board recommend that the dividend on the Ordinary Shares be at the rate of 15 per cent. plus a Bonus of 15 per cent., making a total payment on the Ordinary Shares of 30 per cent., all free of tax. The increased distribution is some £40,000 in excess of the income for the year, but it is recommended in the light of the increased Investment Income and of the fact that £215,000 is credited to the Appropriation Account in respect of a previous provision for Excess Profits Levy no longer required.

THANKS TO STAFF

There are one or two personal matters to which I must refer. At the end of the year Mr. H. A. Mellor retired as Secretary and London Manager after 32 years of able and loyal service which have been of great value to the Company. We wish him well in his retirement.

I wish to express to the Management and Staff in the United Kingdom and in your subsidiaries overseas your appreciation of the loyal and effective way in which they have devoted themselves to the Company's interests during a most exacting year. The Company is indeed fortunate in being so well served in its various undertakings.

I can no longer include the able British and Spanish staff at the Mines in Spain, which have now passed out of our control, but nevertheless I am sure you would wish me to extend to them your good wishes and appreciation of their work which continues to be of great importance to this Company.

In this connection, I have to tell you with the deepest regret that early this month Mr. F. N. Spettigue was killed in a motor accident in Spain. Mr. Spettigue had served the Rio Tinto Company for 24 years and since the formation of the Spanish Company was senior resident manager in the Mines. His loss is indeed a heavy blow to the Spanish Company and to all of us who worked with him so closely in the past. We feel the deepest sympathy for his widow and son.

The report and accounts were adopted and the dividend of 15 per cent., free of tax, and bonus of 15 per cent., free of tax, were approved.

The retiring directors, Sir Mark Turner and Mr. G. E. Coke, were re-elected and the other formal business having been duly transacted, the proceedings terminated with a vote of thanks to the chairman, directors and staff.

At the subsequent Extraordinary General Meeting the proposed capital reorganization was approved and new Articles of Association were adopted.

SOCIÉTÉ MINIÈRE DU BÉCÉKA

(Incorporated in the Belgian Congo)

The Thirty-Fifth Annual General Meeting of the Société Minière du Bécéka was held on June 21, 1955. The following are translated extracts from the Directors' Report which has been circulated to shareholders.

World production of rough diamonds, gem and industrial together, is estimated at 20,163,000 carats for 1953, compared with 18,601,091 cts. for 1952, thus showing an increase of 8 per cent on the year's production.

The Central Selling Organization, which deals with the distribution of rough diamonds, and particularly with the South African output, gives the value for world sales in 1954 as £62,153,125 compared with £61,155,941 in 1953. The figure for the sale of rough diamonds, included in the above totals, was £45,610,010 for 1954, compared with £43,336,109, while that for gemstones was £16,543,115, compared with £17,819,832. The total of gemstones sales has again surpassed all previous records, in spite of the reduction in stocks which was forecast last year.

The industrial diamond market has remained quiet for most of the year, insofar as the demand for tools using whole stones is concerned, although demand for diamond drilling purposes has been maintained at a satisfactory level. A perceptible increase in industrial demand occurred towards the end of the year, as a result of the United States' policy of bartering excess farm stocks for strategic minerals. This increase in demand also affected the market in crushing boart, market price of which has remained steady. This is in line with our policy of maintaining our supply of boart at moderate and stable prices. This policy also conditions the development of our rate of production, which we are endeavouring, by means of substantial capital expenditure, to maintain at a high level so as to satisfy our industrial consumers and encourage the development of new techniques using our products.

During 1954 negotiations were entered upon with a view to renewing for six years the contracts which were reached in 1950 with the Central Selling Organization. These negotiations are still in progress. Various modifications to the current contract are under consideration, both in the interests of the Congo producers and of the Belgian diamond cutting industry.

THE COMPANY'S ACTIVITIES IN 1954

The extent of the deposits held under licence remained un changed during the year. Nor has there been any alteration in the company's holding of land for industrial or agricultural purposes, or for the company's welfare and housing services.

DIAMOND PRODUCTION

Lubilash Section. Production in 1954 rose to 12,050,758 cts., compared with 12,016,199 cts. in 1953. Nine mines were in production, of which four were working three pits, three working two pits and two working one pit. By increasing mechanization we were able to increase the treatment of overburden and diamond-bearing gravel, treating 3,841,000 cu. metres in 1954 compared with 3,443,000 cu. metres in 1953. This enabled us to maintain diamond production at the same level as in 1953. The proportion of overburden stripped mechanically in 1954 was approximately 94 per cent, and that of diamond-bearing gravel 80 per cent (compared with 90 per cent and 70 per cent respectively in 1953). In 1955 the mechanization of our workings will be completed with the bringing into service of a powerful bucket excavator, a rotary shovel, and a new medium capacity electric shovel.

Luebo Section. Three deposits were worked. Output was 40.167 cts., compared with 39.858 cts. in 1953.

GOLD PRODUCTION

The output from the Musefu deposit was 22.4 kg., compared with 44 kg. in 1953.

PROSPECTING

A survey of our Kimberlite rock formations was undertaken by geophysical methods during the year. In future prospecting work, only the electric method will be used. New alluvial reserves were inventoried and show a higher estimate of contents than that for the deposits already being exploited. Furthermore, we are participating with Forminière and the Société de l'Entre-Kasai-Luebo in prospecting for new deposits in the concessions situated up-stream from Port-Francqui, and on the left bank of the Lulua.

PERSONNEL

At the end of the year under review, 130 European officials were employed in the Lubilash section, together with 5,661 native employees. This further increase in the number of employees was due principally to the development of our electrification programme, necessitating further maintenance and repair workers. In addition to this, three European officials and nearly 450 helpers were employed in extensive medical and welfare services for the benefit of all employees. In the Luebo section, two European officials and 538 natives were employed, while in the Musefu section there was one European and 125 native workers. During the year the Company's head office was transferred to Tshikapa at Bakwanga, Belgian Congo.

We would like to take this opportunity of paying a tribute to the co-operation and devotion of our European staff.

Regarding our Congolese staff, we are constantly pursuing a policy designed to increase the number of skilled workers, and trust that our training school for technicians will achieve this result.

The increasing mechanization of our operations has necessitated a re-assessment and reclassification of work and salary scales. The Company has taken appropriate measures for guaranteeing pensions to workers after they reach retiring age; works' consultative committee have met regularly in a fine spirit of mutual understanding.

HOUSING AND WELFARE PROGRAMME

In the Lubilash sector, the progressive rehousing of the various works and administrative and living quarters has been continued. The four buildings comprising the new administrative centre are now occupied. The workshops should be finished in 1955 and a new garage in 1956.

Towards the end of the year under review, the building effort was directed towards improving our medical and social services. These will comprise further services for women, and more educational facilities. A training school for workers' children has already been erected.

ASSOCIATED COMPANIES

***Société** Bécéka-Manganese.* The development of industrial plant is being carried on according to our programme; the steam-powered generator, various workshops, maintenance plant, and housing for the European and native workers have all been erected, or are in the course of completion. The crushing, washing and sorting plant has been put into commission and is working very satisfactorily. Exploratory drilling is still being undertaken. Thanks to increased mechanization the production of manganese attained the normal level of 240,000 tonnes for the year. Satisfactory transport conditions were maintained by rail and sea for the company's output. The company has also extended its welfare facilities.

The accounts for the year 1953 closed with a net profit of Frs. C. 27,135,207 which, after putting Frs. C. 10,000,000 to reserve, allowed of a net dividend payment of Frs. C. 150 on the 80,000 shares issued. The statutory royalties payable to the Colonoy amounted to Frs. 12,048,193.

The accounts for 1954 are in course of preparation and are equally favourable.

Société Diamant Boart. Sales for the year were 30 per cent. above those recorded for the preceding year. This increase was due not only to better market conditions generally, but also to the efforts made to increase sales in Belgium and abroad. After allowing Frs. 4,380,592 for amortization and Frs. 7,772,559 for insurance, the accounts for the year 1954 resulted in a profit of Frs. 12,672,259, to which should be added the sum of Frs. 591,460 carried over from the previous year. This profit allowed a net dividend distribution of Frs. 350 on each of the 15,000 shares (representing a capital of Frs. 50,000,000), after allowing for a sum of Frs. 4,500,000 placed to reserve. The French affiliated company closed its third financial year with a satisfactory profit.

Industrial Distributors (1946) Ltd. The improvement noted in world sales of diamonds had a favourable result on the company's accounts for the year 1954. It is therefore expected that the company's report and accounts will show an increase of about 15 per cent. on the previous year's figures.

Diamond Trading Co. & Diamond Purchasing and Trading Co. The transactions of this company show a slight improvement over last year's figures.

Société d'Elevage et de Culture au Congo Belge. (S.E.C.) The accounts of this company for 1953 showed a profit of Frs. 10,980,241, which enabled a dividend of Frs. 95 per share to be paid. The accounts for 1954 indicate that a similar dividend will be maintained.

Union Financiere et Maritime "Ufimar." Profits for the year 1953-54 rose to Frs. 64,314,365, excluding the carry-forward from the previous year of Frs. 33,098. A net dividend of Frs. 250 was paid and a sum of Frs. 9,084,309 was put to reserve.

UNION MINIÈRE DU HAUT-KATANGA

The annual meeting of shareholders of the Union Minière du Haut-Katanga was held in Brussels on June 23 under the presidency of **Mr. P. Gillet.**

According to the agenda, the Meeting first approved certain alterations to the Articles of Association, which enact in particular the right for the General Meeting to grant the honorary title of their position to former Chairmen and Directors and provide for a new distribution scheme of profits, reducing from three to two the Board's percentage and raising from two to three per cent the share of the personnel.

The accounts for the financial year ended December, 1954, were also adopted.

The Profit and Loss Account for 1954, circulated to the shareholders, showed a gross profit of Fr. 4,904,331,396. By deduction of the provisions for depreciation and for profit taxation and of sundry charges and by inclusion of the amount brought forward, the available profit balance totalled Fr. 3,362,470,955.

From this balance a sum of Fr. 750,000,000 was allocated to the special reserve and contingencies fund and Fr. 107,880,359 were carried forward. The amount left for distribution was accordingly Fr. 2,504,590,596.

The Meeting fixed at Fr. 1,600 net per share the total dividend for the year 1954. Taking into account the interim dividend of Fr. 600 paid in January, 1955, this entails a final dividend amounting to Fr. 1,000 net per share, payable as from July 4, 1955.

Mr. Gillet, Chairman of the Board, informed the Meeting of the favourable conditions in which H.M. King Baudouin recently visited the Company's works in Katanga. His Majesty expressed his great interest for the operations which he was shown during his tour of some of the Company's properties.

Mr. Gillet has put his stay in Katanga to profit to visit Union Minière's most important installations, and to make contact with the personnel. He expressed his great satisfaction for the way operations are conducted and for the realizations attained in all departments.

MR. SENGIER'S STATEMENT

In his address to the Meeting, Mr. Edgar Sengier, Chairman of the Permanent Executive Committee, said that the year 1954 had been an outstanding year for the Union Minière: high metal outputs with the consequent favourable financial results, inception of the Company's activity in the nuclear power and germanium fields, expansion of hydroelectric power availabilities, investigation of new technical processes, design of new plants and of enlargements to existing installations.

"The following," Mr. Sengier added, "are a few distinctive figures concerning the year's results:—

Turnover	10,938 million francs
Net dividend	1,987 million francs
Taxes	2,424 million francs
Royalty to the Comité Spécial du Katanga (conceding power)	229 million francs
Provisions for depreciation	800 million francs
Total capital expenditure	1,378 million francs
including for hydroelectric power equipment	557 million francs
Allocation to the reserve	750 million francs

Regarding the future, Mr. Sengier also stated that in the light of the metal market evolution and on account of the development of the Company's mining reserves in the Kolwezi area, plans had been drawn in view of a further expansion of the productions. This will necessitate additional capital expenditures, which the Company's own cash is capable of coping with.

Commenting on the copper market position in 1954, Mr. Sengier mentioned the striking difference between the situation in the United States and elsewhere in the world, from both viewpoints of distribution and pricing.

On the whole, except for the very recent times, the output from the new mines has not yet become apparent, because it has been partially counterbalanced by the output deficit resulting from the strikes. The increase in the world production expected for 1955, *i.e.* about 250,000 metric tons, should contribute to regularize the market position.

REPORT OF THE BOARD OF DIRECTORS

In the Report of the Board of Directors which has been circulated with the accounts, it is said that the copper production of the Company was subject in 1954 to a further increase, at 223,791 metric tons. The cobalt output for the same year amounted to 8,609 metric tons.

The operation of the various plants and mines, and the construction programme of the Company continued to develop favourably.

Emphasis is laid on the general situation of the Company's native labour. Further efforts have been made to promote their evolution. More workers benefited from the status which places them in a position to receive their full salary in cash. The Company's counselling committees for native affairs, to which a greater proportion of native employees participate, bring a useful contribution to the formation of a Congolese élite.

In this respect, the Chairman of the Board announced to the Meeting that the Company had decided to create six study funds of one million francs each, with a view to rendering possible the admission of a corresponding number of well-gifted Congolese to the Lovanium University in Léopoldville.

EL ORO MINING AND EXPLORATION CO., LTD.

The Eighth Annual General Meeting was held in London on Monday last.

Mr. M. Woodbine Parish (Chairman and Managing Director) presided.

The following is an extract from the Statement by the Chairman which was circulated with the report and accounts for the year ended December 31 last:—

The net profit for the year ended December 31, 1954, is £59,449, which compares with £36,247 for the previous year.

After building up a strong enough reserve position, which should enable the Company to stand up against all but the most abnormal conditions, thus safeguarding the Company from the very wide fluctuations that are to be expected in a finance business such as ours, then it is the Board's intention to enter the dividend list. I am confident that this is the wise and prudent policy for the Board to adopt, and I would suggest that this is borne out by the very real progress we have made over the last seven years.

It would be foolish to expect progress of this magnitude to be achieved every year, and we must expect pauses, and indeed setbacks, on the general line of advance, but reviewing the position over the medium to long-term future, I am confident that, except for exceptional circumstances, the type of progress which we have made should be continued.

Regarding the current year the indications are that this could easily be one of the lean years. To begin with we have had a very steep rise in the Bank Rate.

Secondly, business on the Stock Exchange, which last year was exceedingly active, and of which we took full advantage, has largely fallen away.

Thirdly, the General Services Administration announced on May 16, 1955, that it is retiring from the market for columbium and tantalum ore. This could have very severe repercussions on columbite producers.

Fourthly, the "Financial Times" indices for gold mines and developers at the end of April have fallen by approximately 11 per cent since December 31, 1954.

The assets of the Company have certainly suffered a fall since the end of the year, but I think, generally speaking, we are managing to beat the indices, which is a thing we have been able to do. But what I am pointing out is the necessity in a business such as ours, to establish a really strong position both as to capital and reserves, thus enabling the regular and continued payment of dividends.

The report and accounts were adopted.

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SIAMESE TIN SYNDICATE

IMPROVED OUTLOOK

The annual general meeting of the Siamese Tin Syndicate Ltd. was held on June 23 in London, **Mr. Robert S. G. Scott,** Chairman, presiding.

The following is an extract from his circulated Review for 1954:—

The production for the year was 1,998 tons of tin concentrates compared with 2,642 tons produced by the group in 1953. This drop in output is accounted for partly by reason of the Bangrin No. 1 dredge having been under repair for some four months, and partly by reduced recoveries by other dredges of the group.

This reduction in recoveries is partly fortuitous, owing to the dredges working through lower grade areas.

Besides the fall in output we have suffered a reduction in the average price obtained for our concentrates.

Against these adverse factors there has been some reduction in our costs. This is attributable to some extent to a decrease in mining costs but is mainly the result of a most welcome reduction of Thai export duty.

Under the circumstances which I have outlined, our profits have suffered. The consolidated net profit before tax is £265,731. This represents a considerable drop. The taxation provision has, however, been considerably reduced by various allowances, so that the net amount available is £137,837 as against last year's figure of £134,822.

ORE RESERVES

We have been at some pains during the year to review most carefully our reserves and have not hesitated to reduce them drastically where this has been thought advisable. As a result out total reserves at the year end stood at approximately 126,800,000 cubic yards estimated to contain some 29,700 tons of tin ore. This figure does not, however, include the Bangnon property of some 32 million cubic yards (the check boring of which is nearing completion) as the leases in respect thereof have not yet finally been issued to the Company. Another property containing some 8 million cubic yards is also omitted for the same reason.

Prospecting: *Siam.*—Negotiations have resulted in virtual agreement for the granting to us of a sub-lease over about 2,000 acres adjoining our present Huey Moot property which would give us the right to bore the area.

Malaya.—In addition to the large area over which we possess prospecting permits at Gambang we have also applied during the year or since for further prospecting permits over other areas totalling over 10,000 acres.

SUMMARY AND PROSPECTS

I will now try to give you some idea of our future prospects as I see them.

So far as the immediate outlook is concerned, given a continuation of present conditions and tin price, I have every hope that 1955 will show an improvement over 1954. Our production to April 30 showing an increase of about 10% is a welcome pointer in this direction.

Looking somewhat further ahead, we expect to have an excellent new property at Bangnon, which in due course should earn us satisfactory profits, and it is largely with a view to equipping that property that we have, as announced in the national press, entered into negotiations with the Renong Consolidated, Katu and Burma-Malay Companies. The two first named Companies are each operating what we believe to be a well equipped dredge in Thailand. The Burma-Malay Company's assets consist only of cash and investments and it has been included in the negotiations as a matter of convenience to both parties. The Renong Company's leases are close to the Bangnon leases and the dredge should be admirably suitable for working part or parts of that property after working out its own leases in 2-3 years' time. The Katu Company's leases are expected to provide profitable working for that dredge for some 6 years. If our investigations show the results we anticipate the acquisition of these interests should greatly strengthen our position and show us a very satisfactory return.

In addition, we have various prospects in Thailand and Malaya so that the more distant future is not being lost sight of.

We still do not know whether the Tin Restriction agreement will come into effect but if it does it seems possible that we may feel the effects more severely in Malaya than in Thailand, where our interests predominantly lie. On the other hand, in the event of the Buffer Pool coming into operation we may well have to finance our share of the Thai contribution to the Pool. This might eventually amount to a very considerable figure.

The report and accounts were adopted.

PENGKALEN, LTD.

MR. DONALD W. THOMAS'S REVIEW

The forty-seventh annual general meeting of Pengkalen, Ltd., was held on June 24 at the Registered Office, Redruth.

Mr. Donald W. Thomas (Chairman) presided.

The Reports and Accounts for the year ended September 30, 1954, having been circulated for the prescribed time, were taken as read, as was also the Chairman's Statement circulated with the Accounts, which was as follows:—

The accounts for the financial year ended September 30, 1954, show a profit of £56,766 after payment to the Malayan Government of £41,219 for royalty on ore sales, provision of £78,603 for United Kingdom and Malayan Taxation and £162 for depreciation in Malaya. Although the average price received for our tin-ore was £60 per ton less than in the previous year, and the volume of the ground treated less, the recovery per cubic yard was higher and the mining profit considerably increased. This permitted a higher dividend rate, the amount paid on the Preferred Ordinary Shares being 3/3d. and on the Ordinary Shares 2/9d. The Profit and Loss Account balance carried forward at £61,614 shows an increase of £13,269. Included in the Accounts is a credit in the Appropriation Account of £25,070 previously provided for taxation and now, by reason of agreement with the Taxation Authorities, no longer required.

Attention is drawn to the General Managers' Report which was circulated with the Annual Report and gives full details of the year's operation at the mine.

As already advised, output for the six months of the current year to March, 1955, at 235½ tons is about the same as last year and the maintenance of a satisfactory rate of output is forecast by the General Managers.

I am glad to be able to report that the security position appears to have improved; there were no incidents on the property during the period under review. Defence measures are being maintained on a reduced scale.

INTERNATIONAL TIN AGREEMENT

I think that Shareholders will be interested to know that the Agreement has received the required number of member Governments' signatures, but still requires ratification by some of the Governments concerned before it can be brought into operation.

On behalf of the Board I have pleasure in expressing appreciation of the services of the General Managers, Resident Manager, Staff and Labour Force at the mine. During the year several important engineering projects have been carried out with the utmost efficiency and minimum interruption to ore production.

The Statement of Accounts and Balance Sheet, together with the Directors' Report, were received and adopted.

GOLD COAST GOVERNMENT
VACANCY FOR DRILLERS, RURAL WATER DEPARTMENT

Qualifications:

Candidates must have had not less than five years experience of water well drilling with percussion and rotary rigs, must be able to instal deep well pumping plant, and must be capable of carrying out field repairs to the drilling plant and of dressing their own tools. Preference will be given to candidates who have been apprenticed in mechanical engineering.

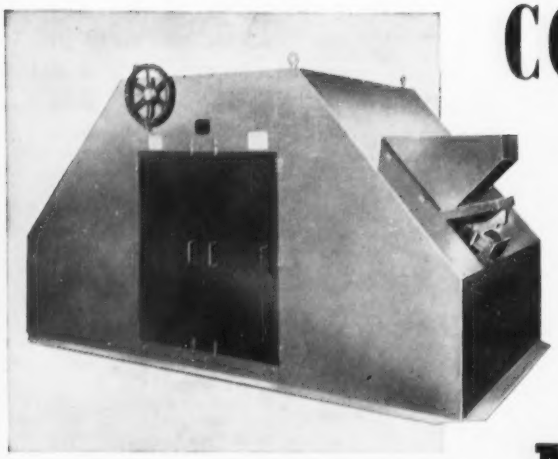
Terms of Service:

The appointment will be on contract/gratuity terms for one tour of 18 months with a possible extension to two tours. Salary will be in the range of £1,000-£1,500 per annum (consolidated) according to age, qualifications and experience. A gratuity at the rate of £37 10s. for each completed three months of satisfactory service will be payable on final termination of the contract.

Free passages on first appointment and on leave will be provided for the officer and his wife once each way during each tour of service. The officer will normally be required to travel by air. Free air passages will also be provided for a maximum of 3 children under 13 years of age.

Vacation leave with pay: seven days for each month of service. Furnished quarters available at low rental. Income tax at local rates. Kit allowance on first appointment may be payable.

CANDIDATES SHOULD APPLY TO:—The Adviser on Recruitment, Gold Coast Office, 13 Belgrave Square, London, S.W.1, giving details of their age, experience, employment, etc.



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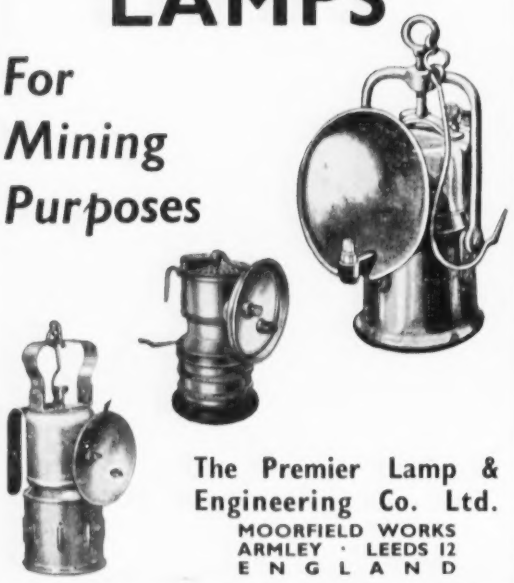

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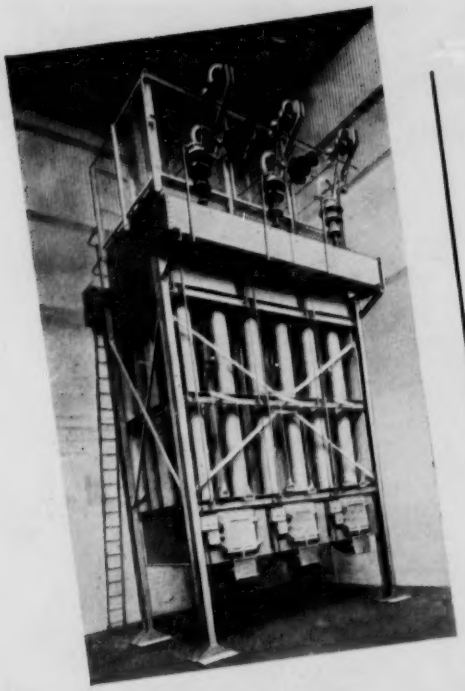

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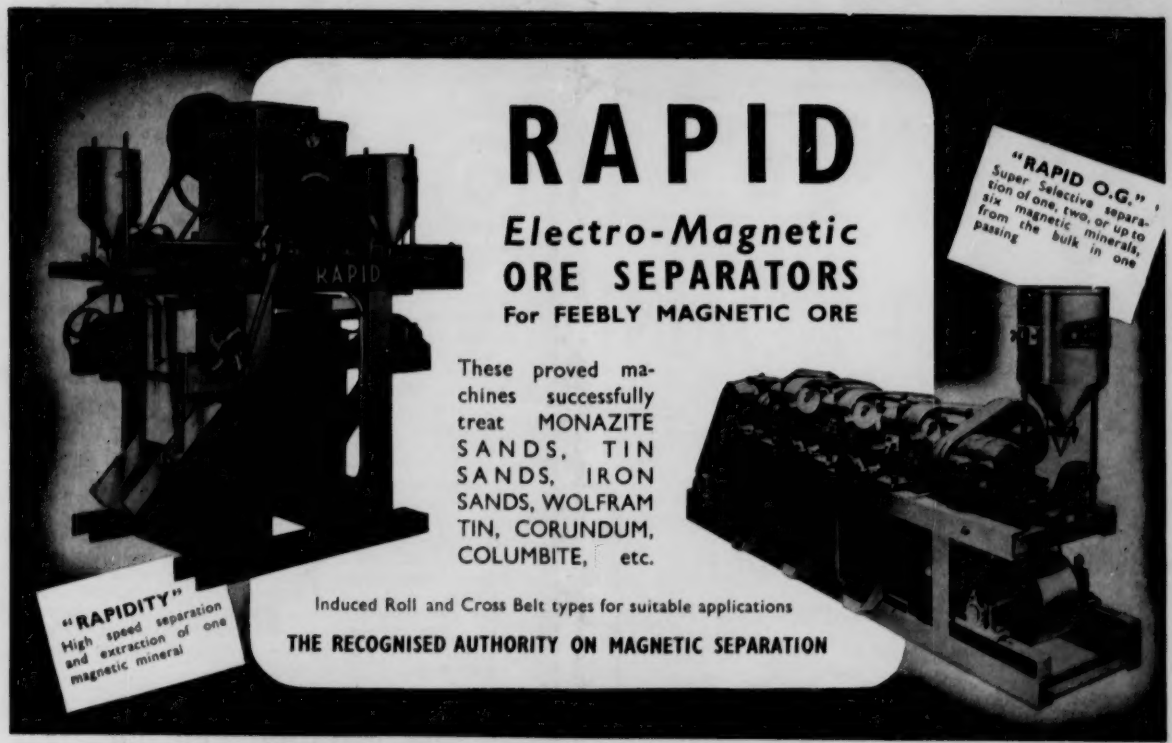
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